

SONY

Digital Processing Control Amplifier

Operating Instructions

Mode d'emploi

Manual de instrucciones

TA-E1000ESD

WARNING

To prevent fire or shock hazard, do not expose the unit to rain or moisture.

To avoid electrical shock, do not open the cabinet. Refer servicing to qualified personnel only.

NOTICE FOR THE CUSTOMERS IN THE UNITED KINGDOM

IMPORTANT

The wires in this mains lead are coloured in accordance with the following code:

Blue: Neutral

Brown: Live

As the colours of the wires in the mains lead of this apparatus may not correspond to the coloured markings identifying the terminals in your plug, proceed as follows: The wire which is coloured blue must be connected to the terminal which is marked with the letter N or coloured black. The wire which is coloured brown must be connected to the terminal which is marked with the letter L or coloured red.

Operating Voltage

Before connecting the unit to an AC outlet, be sure that the operating voltage of your unit is identical with that of your local power supply.

European countries	Operates on 220 V AC, 50/60 Hz.
United Kingdom	Operates on 240 V AC, 50 Hz.
Other countries	Operates on either 120 V, 220 V or 240 V AC, 50/60 Hz. The voltage selector is located on the rear panel. If the selector must be reset, disconnect the AC power cord and turn the selector with a coin so that the arrow mark of the selector points to the proper voltage figure.

Table of Contents

Getting started

Overview	4
Precautions	5
Installation	5
Connections	6
Notes on connections	6
Connecting audio equipment	6
Connecting video equipment	7
Connecting power amplifiers	8
Connecting the remote control system	9
Connecting the AC power	9
Function of controls	10
Front panel	10
Programmable system commander RM-P1000	12
Getting ready to enjoy surround sound	14
Positioning the speakers	14
Selecting the Pro Logic mode	15
Adjusting the speaker volume	15
Adjusting the input level and input balance	18
Adjusting the volume level of the rear speakers	19
Adjusting the delay time of the rear speakers	20

Using your amplifier

Listening to/watching program sources	21
Basic operation	21
Combining the video image with the sound from another program source	22
Assigning digital audio input to a input function button	23
Putting your own label on an input function button	24
Enjoying the factory-preset digital sound effects	25
What are the digital sound effects?	25
Selecting the factory-preset soundfield program	25
Recording audio/video program sources	26
Basic operation	26
Recording program sources while listening to/ watching another	27
Using the remote commander	28
Programming signals of other audio/video equipment with RM-P1000	28
Controlling equipment	29

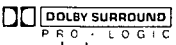

Making most of the digital sound effects

Making most of the digital sound effects	30
Function of the digital sound effects	30
Table of adjustable parameters	30
Using the digital surround system	31
Understanding the digital surround system	31
Characteristics of the surround modes	31
Adjusting the main parameters	32
Simulating the room size	32
Simulating the wall material	33
Simulating the seat position	34
Adjusting the sub parameters	35
Basic operation	35
Early reflection time	35
Early reflection level	36
Reverberation time	36
Reverberation density	37
Spread	37
Effect level	38
Using the digital parametric equalizer	39
Understanding the digital parametric equalizer	39
Adjusting the digital parametric equalizer	39
Using the digital dynamics controller	41
Understanding the digital dynamics controller	41
Adjusting the digital dynamics controller	41
Storing the settings of digital sound effects	42
Storing the settings of digital sound effects	42
Getting into the details	
Table of factory-preset soundfield parameters	43
Specifications	44
Block diagram	46
Troubleshooting	47

Overview

The TA-E1000ESD is a control amplifier with a built-in digital signal processor. You can enjoy various audio and video program sources with this unit.

Digital surround system

- The TA-E1000ESD electronically reproduces the reflected sound (early reflections) and reverberative sound (reverberation) by using its digital signal processor, and allows you to obtain the acoustics of various situations.
-  * decoder reproduces the specially encoded surround sound of Dolby surround video programs.
- * Manufactured under license from Dolby Laboratories Licensing Corporation.
"DOLBY" and the double-D symbol  are trademarks of Dolby Laboratories Licensing Corporation.

Digital parametric equalizer

- You can enjoy program sources with equalization curve by adjusting the level of 3 frequency bands.

Digital dynamics controller

- You can use the compressor or expander to control the dynamics:
 - the compressor compresses the dynamic range of the program source, so you can enjoy dynamic sound at small output levels.
 - the expander eliminates undesirable noise between tunes, etc.

Factory preset/user memories

- 10 recommended soundfield programs (combinations of surround, parametric equalizer, and dynamics controller settings) are preset in the factory for easy use. You can also store up to 10 settings you created in the memory.

TV/VTR control center

- You can control up to 5 VTRs, a video disc player, and a TV tuner with this unit.
- You can add sounds from various audio program sources to video programs using the "MIX" function.
- You can label the input functions as you desire.

Built-in D/A converter

- The built-in D/A converter allows you to directly connect CD players or DAT decks with optical/coaxial digital outputs.

Programmable system commander RM-P1000

- The supplied remote commander can "learn" the various functions of other infrared type remote commanders.

Precautions

On safety

- Before connecting the unit to the power source, check that the operating voltage of your unit is the same as the local power line voltage.
- The unit is not disconnected from the AC power source as long as it is connected to the wall outlet, even if the unit itself has been turned off.
- Should any solid object or liquid fall into the cabinet, unplug the unit and have it checked by qualified personnel before operating it any further.
- Unplug the unit from the wall outlet if it is not to be used for an extended period of time. To disconnect the cord, pull it out by grasping the plug. Never pull the cord itself.

On operation

Before making program source connections, be sure to unplug the unit.

On cleaning the cabinet

Clean the cabinet, panel and controls with a soft cloth slightly moistened with mild detergent solution. Do not use any type of abrasive pad, scouring powder, or solvent such as alcohol or benzene.

On side panels (except for the customers in the United Kingdom)

To detach the side panels, first disconnect the power cord from the wall outlet. Remove the screws on both sides to remove the panels and fasten the supplied screws into the holes on the main unit.

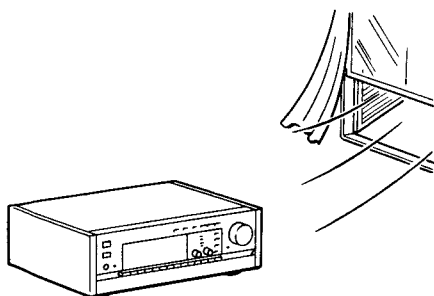
If you have any question or problem concerning your unit, please consult your nearest Sony dealer.

Installation

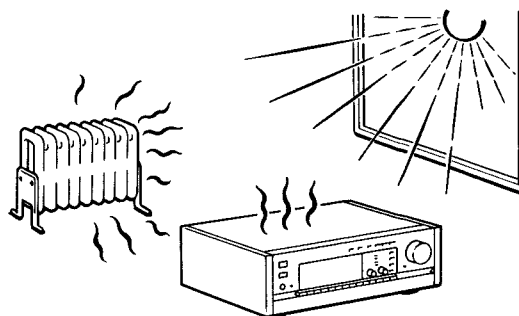
Installing the Unit

Place the unit in a location with adequate air circulation to prevent internal heat built-up in the unit.

This way



Not this way



Do not install this unit:

- near heat sources such as a radiator or air ducts.
- in a place subject to direct sunlight, excessive dust, mechanical vibration or shock.
- in an inclined position.

Do not place anything on the top of the cabinet. The top ventilation holes must be unobstructed for the proper operation of the unit and to prolong the life of its components.

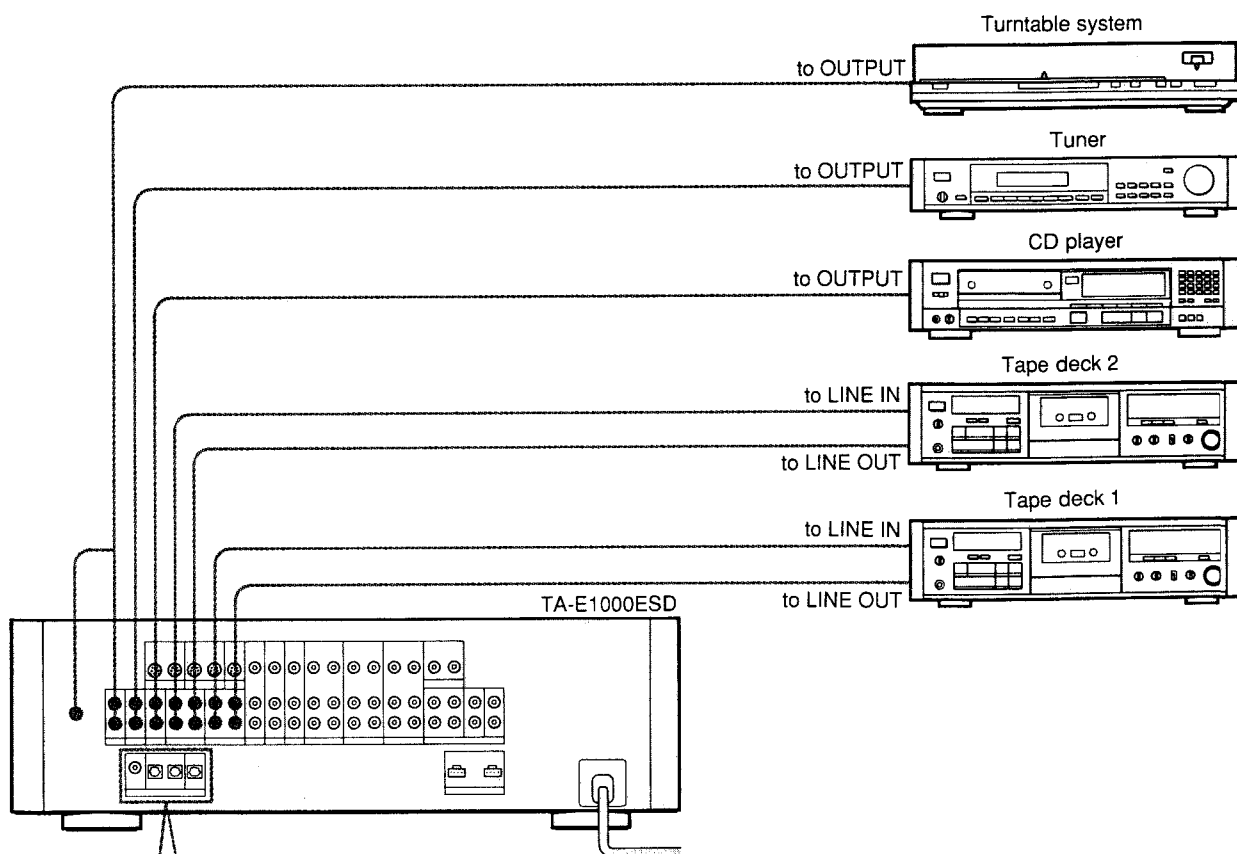
Do not throw away the carton and packing material. They will be an ideal container when the unit is transported.

Connections

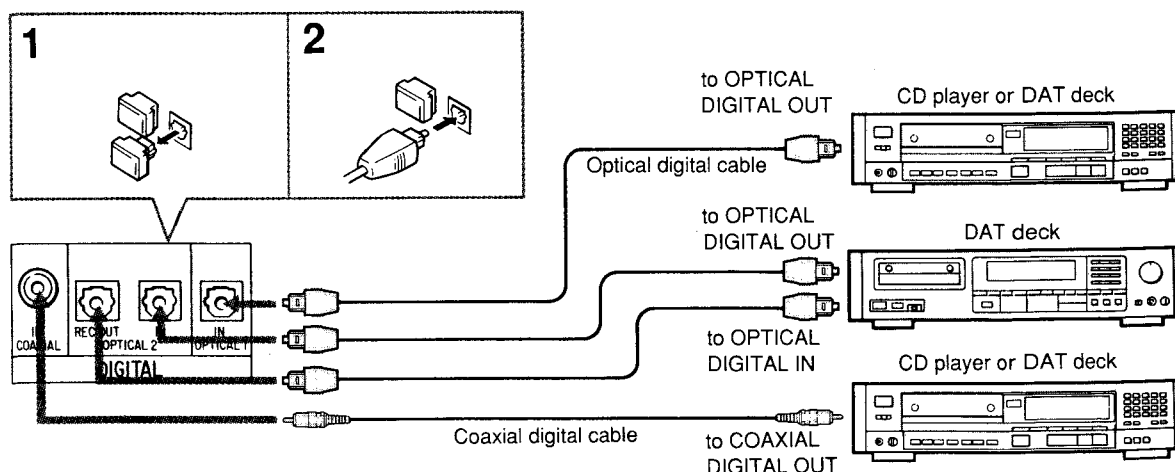
Notes on Connections

- Do not connect the power cord to an AC outlet nor press the POWER switch before making all connections.
- The cable connectors should be fully inserted into the jacks. Loose connections may cause hum and noise.
- Jacks and plugs of the connection cord are color-coded as follows:
Red jacks and plugs: for the right channel of audio signals
White jacks and plugs: for the left channel of audio signals
Yellow jacks and plugs: for video signals
- The side panels are not equipped with the models for the United Kingdom.

Connecting Audio Equipment

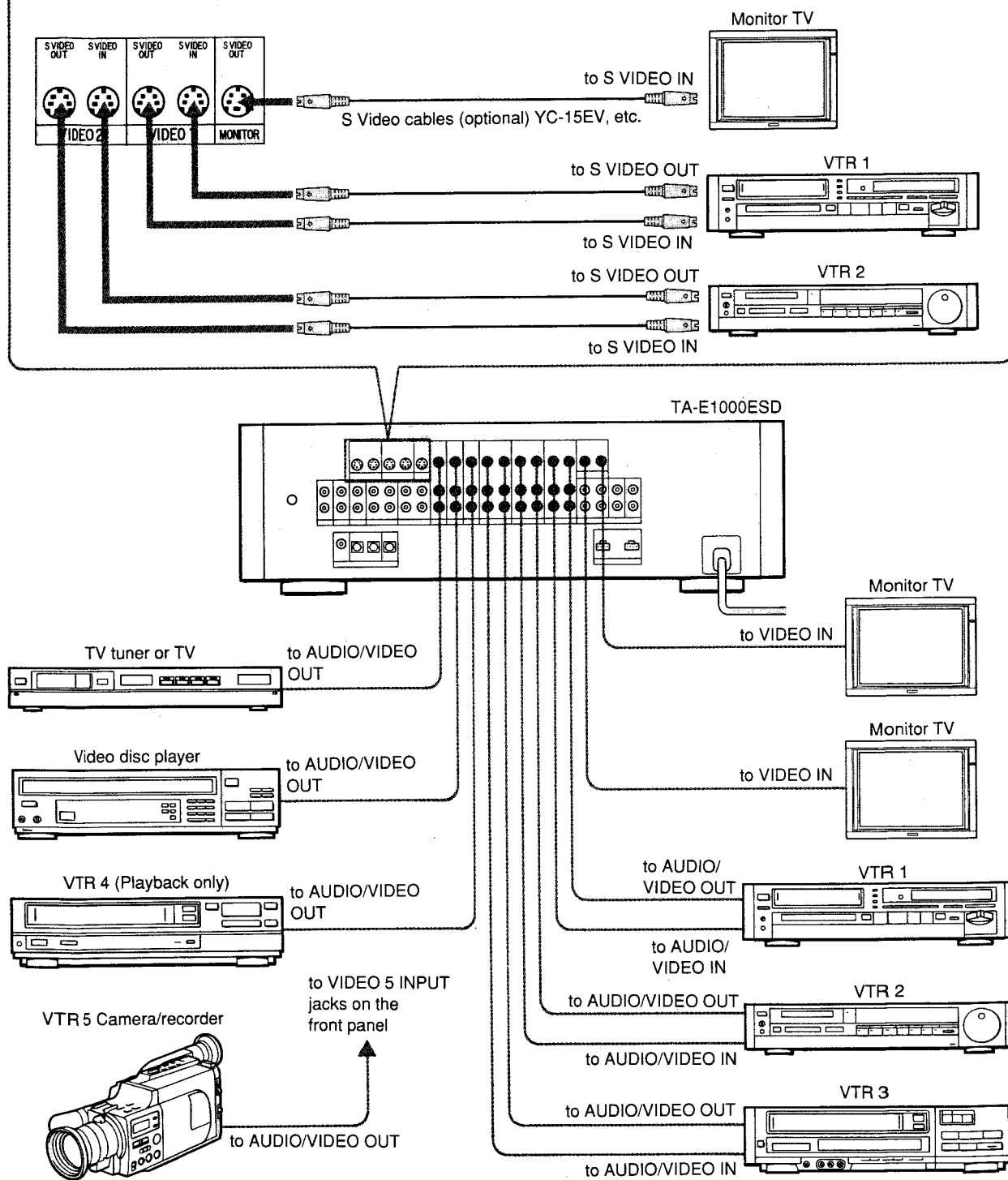


Connecting CD players or DAT decks equipped with digital input/output jacks



Connecting Video Equipment

Connecting VTR and monitor TV equipped with the S VIDEO jacks.



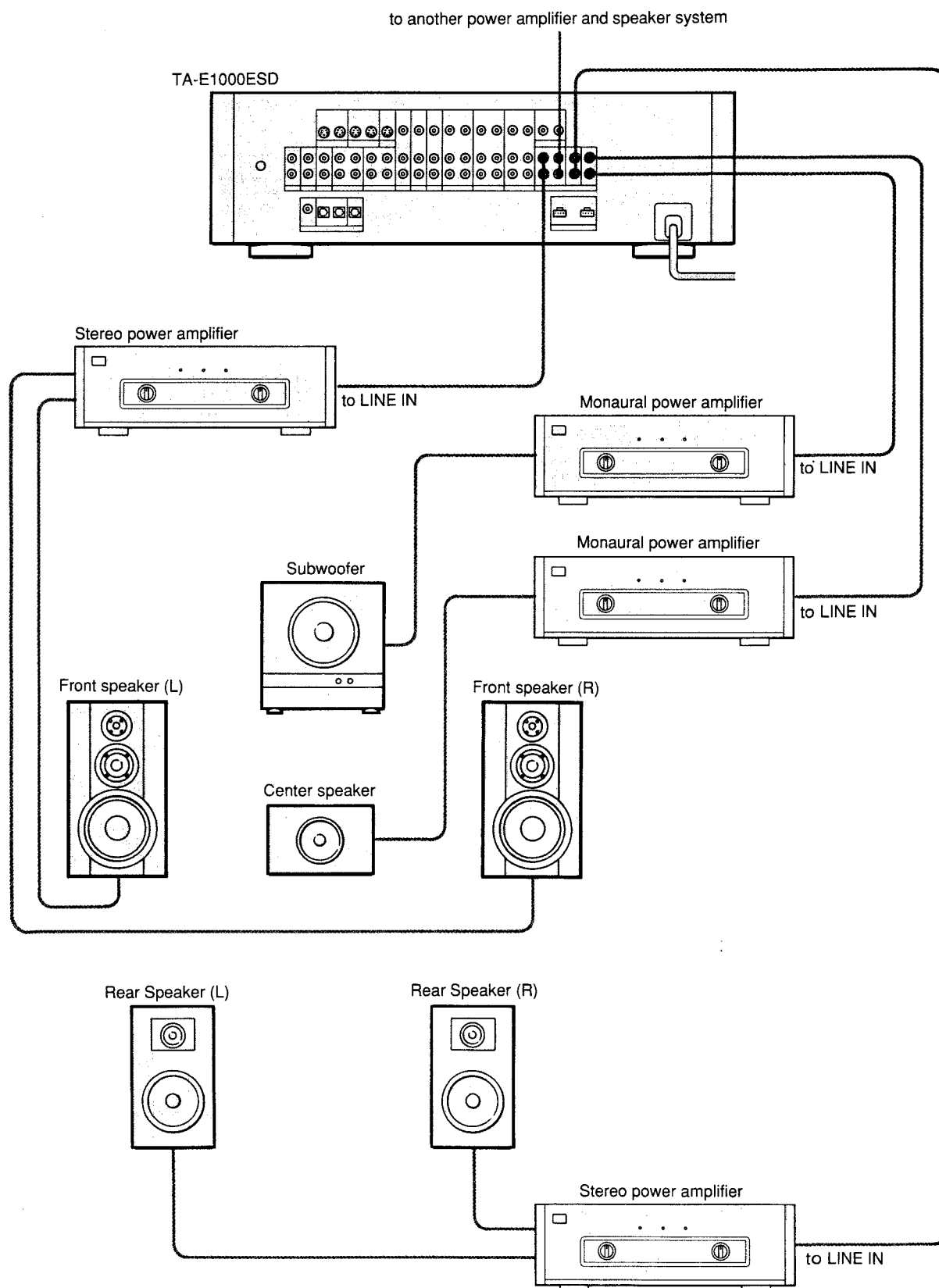
Note

The unit has independent input/output circuitries for S VIDEO and VIDEO IN jacks. Therefore, the video signal input from VIDEO IN does not output for S VIDEO OUT jacks, and vice versa.

Connections

Connecting Power Amplifiers

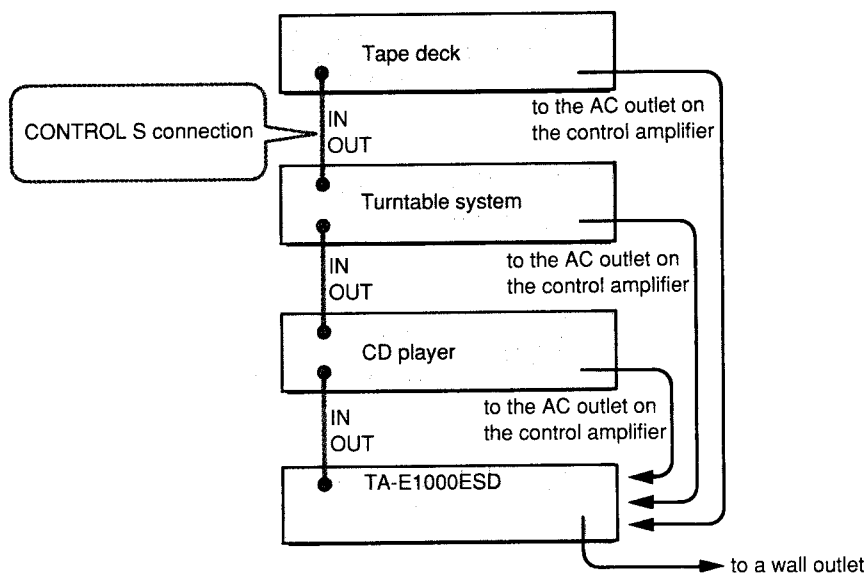
Integrated amplifiers can be used instead of the power amplifiers illustrated below.



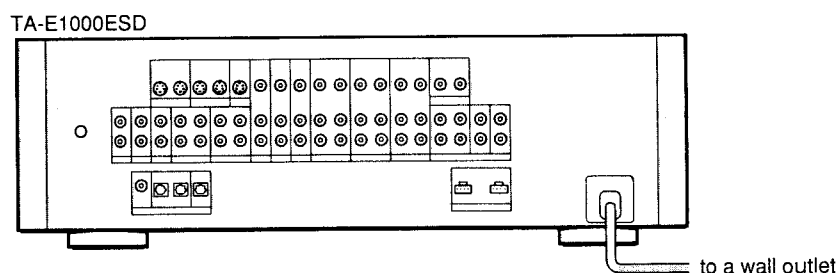
Connecting the Remote Control System

To control the equipment connected to the TA-E1000ESD with the remote commander, connect the CONTROL S OUT connector and the CONTROL S IN connector of each piece of equipment as illustrated below.

Example of audio connection



Connecting the AC Power



Notes on AC OUTLETS on the rear panel

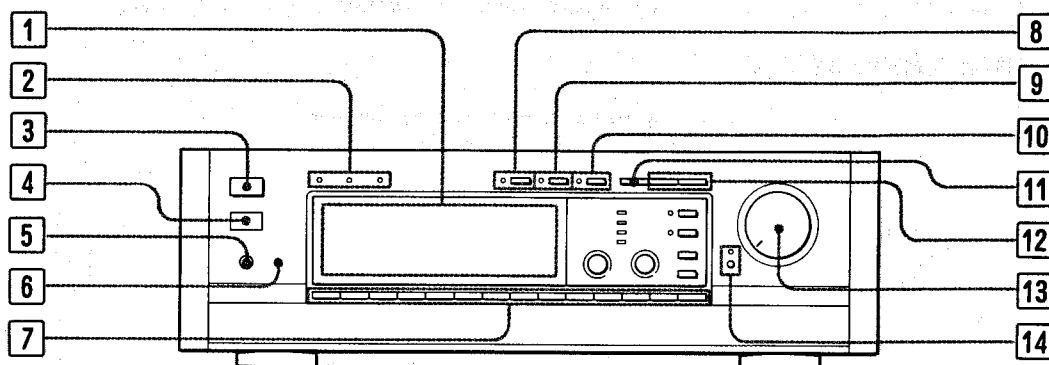
AC outlets are used to power other audio components whose total power consumption is less than the wattage indicated below.

	AC outlet	Total power consumption
West Germany and the United Kingdom	1 switched	540 watts max.
Switzerland	No AC outlet is equipped.	—
Other European countries	1 switched	500 watts max.

	AC outlet	Total power consumption
Countries other than Europe	3 switched	Total 540 watts max.
	1 unswitched	300 watts max.

Functions of Controls – Refer to the pages indicated in ● for details.

Front Panel



1 Display window

2 Sampling frequency indicators

When a digital signal is being input correctly, an indicator of the sampling frequency glows (44kHz for compact disc, etc.).

3 POWER switch

Press to turn on the unit. Press again to turn off.

4 Remote control sensor

5 HEADPHONES jack

Accepts the stereo phone plug of headphones. The jack outputs the sound of front speakers only. To listen to the program source only with the headphones, turn off the power amplifiers as the unit does not turn off the line output when the headphone plug is inserted.

6 DIMMER button

Dims the brightness of the display window. Two levels of brightness can be selected.

7 Input function buttons

Selects the desired program source.

8 PARAMETRIC EQ button and indicator ●

Turns on and off the parametric equalizer. When the parametric equalizer is on, the indicator glows.

9 DYNAMICS button and indicator ●

Turns on and off the dynamics function. When the dynamics function is on, the indicator glows.

10 SURROUND button and indicator ●

Turns on and off the surround function. When the surround function is on, the indicator glows.

11 PRESET/USER select button

Selects the factory-preset program or the user program.

12 SOUNDFIELD PROGRAM buttons

Selects the desired program number.

13 MASTER VOLUME knob

Controls the audio level from LINE OUT and HEADPHONES jacks.

14 MUTING button and indicator

Press the button to mute the sound. Press again to resume the sound.

15 MAIN PARAMETER button and indicators ●, ●

Selects the pair of main parameters to be set. The indicator glows when the main parameters can be set.

16 SUB PARAMETER button and indicator ●, ●

Selects the sub parameter to be set. The indicator glows when the displayed sub parameter can be set.

17 EQ BAND select button ●

Selects the desired band of the parametric equalizer.

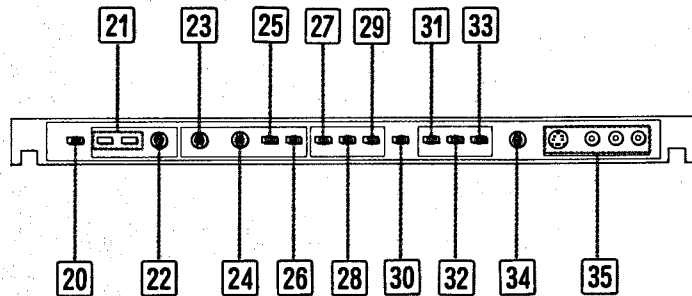
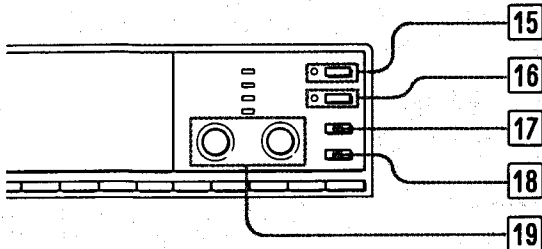
18 EQ SLOPE select button ●

Selects the desired slope (bandwidth) of the parametric equalizer.

19 DIGITAL PROCESSING CONTROL knobs and indicators

Set the parameters.

Behind the panel



20 DISPLAY MODE button

Selects the component of the display window as follows:

- Displays all information.
- Displays only the input function.
- Turns off the display and all indicators except the volume indicator.

21 DIGITAL input level buttons 40

Adjust the input level of digital inputs. Press + until OVER appears in the display, then press - until OVER goes off.

22 ANALOG input level knob 40

Adjusts the input level of analog inputs. Turn the knob clockwise until OVER appears in the display, then turn the knob counterclockwise until OVER goes off.

23 INPUT LEVEL control knob 18

Adjusts the input level of Dolby surround program sources.

24 INPUT BALANCE control knob 18

Adjusts the input balance of Dolby surround program sources.

25 PRO LOGIC MODE button 15

Selects the operation mode of Dolby Pro Logic surround function.

26 TEST TONE button 15, 17

Turns on and off the test tone to adjust the balance among front, rear, and center speakers.

27 MEMORY button

Press when storing the parameter settings, etc.

28 ENTER button 42

Stores parameter settings in the unit.

29 CLEAR button 23, 42

Clears the assigned digital input to a input function button.

30 CHARACTER button 24

Labels to a input function button.

31 EFFECT REC button 26

Outputs analog REC OUT signals with digital sound effects. This function does not operate for digital REC OUT signals.

32 SET button 27

Sets the desired program source for recording while you listen to/watch another program source.

33 CHECK button 27

Displays the program source to be recorded set by the SET button.

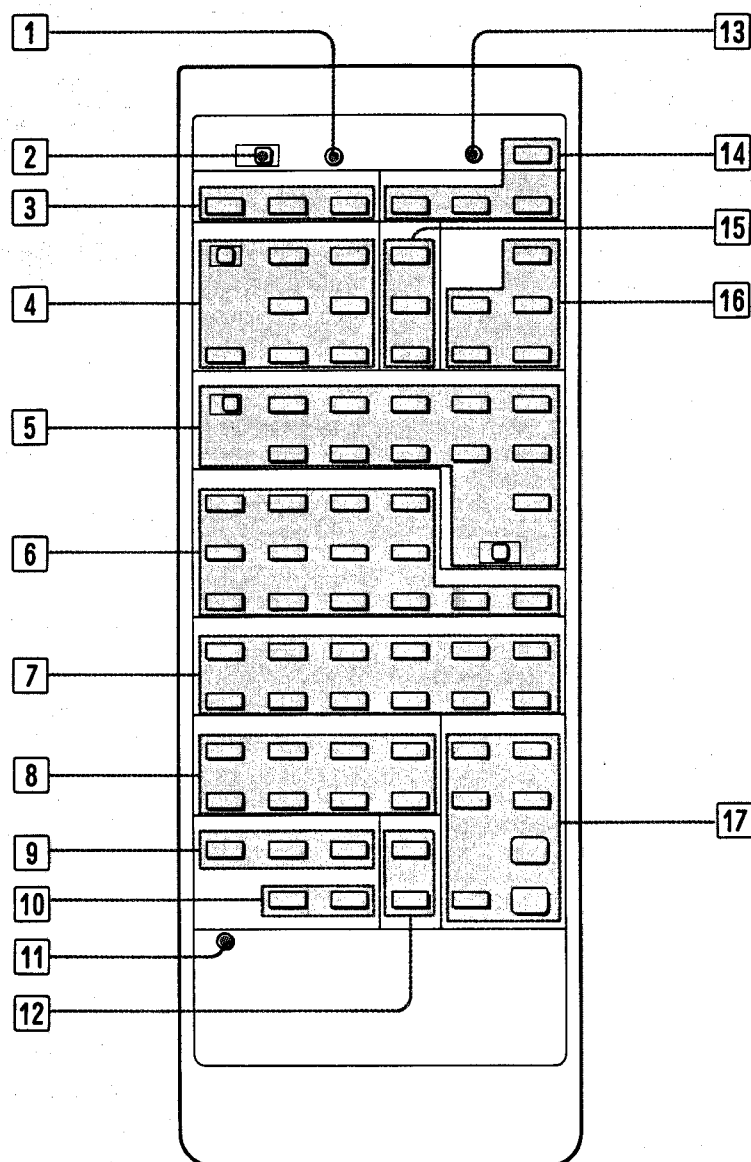
34 BALANCE control knob

Adjusts the balance between left and right front speakers. Generally, set the knob at the center position.

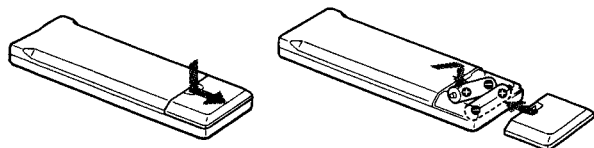
35 VIDEO 5 INPUT jacks

Accepts S-video/video and audio input signals.

Programmable System Commander RM-P1000



Installing the batteries



To avoid damage caused by battery leakage and corrosion
When the commander will not be used for a long time, remove the batteries.

The RM-P1000 can "learn" various functions of other remote commanders which use infrared rays. When the mode selector is set to SONY STD(Sony standard), buttons on the RM-P1000 can be used to perform the functions below:

1 LEARN indicator

2 Mode selector

SONY STD : To operate the commander on Sony standard.

USER STD : To use the learned functions.

LEARN : To learn other functions.

3 AC OUTLET CONTROLLER buttons

These buttons does not operate with this unit.

4 CD player/video disc player operation buttons

CD/VDP : Selects the unit to be operated.

▶ : Play

⏏ : Pause

■ : Stop

◀◀, ▶▶ : AMS (Automatic Music Sensor)

◀◀, ▶▶ : Search

5 TAPE/VTR operation buttons

TAPE/VTR : Selects the unit to be operated.

▶ : Play

⏏ : Pause

■ : Stop

◀◀ : Rewind

▶▶ : Fast forward

● : Recording(Press both buttons for recording.)

Following buttons can be used when the TAPE/VTR selector is set to VTR.

DUAL : Selects bilingual programs.

ANT TV/VTR : Selects output signal from the antenna terminal on the VTR.

CH +/- : Selects a higher or lower preset channel.

VTR selector : Selects VTR 1, 2, or 3.

6 Input function buttons

7 Soundfield program buttons

8 Parameter control buttons

MAIN PARAMETER select button

SUB PARAMETER select button

EQUALIZER BAND select button

EQUALIZER SLOPE select button

DIGITAL PROCESSING CONTROL buttons

Work as DIGITAL PROCESSING CONTROL knobs on the unit.

9 Digital sound processing buttons

PARAMETRIC EQ on/off button

DYNAMICS on/off button

SURROUND on/off button

10 DISPLAY buttons

DISPLAY MODE button

DIMMER button

11 RESET button

12 Dolby surround buttons

PRO LOGIC MODE button

TEST TONE button

13 PROGRAM CLEAR button

Clears all programmed signals.

14 POWER buttons

POWER : Turns on and off the TA-E1000ESD.

TV POWER : Turns on and off the TV.

VTR POWER : Turns on and off the VTR selected by the VTR selector switch. (usable only when the TAPE/VTR selector is set to VTR).

VDP POWER : Turns on and off the video disc player.

15 Tuner operation buttons

BAND : Selects the frequency band.

PRESET +/- : Selects a higher or lower preset number.

16 TV operation button

TV/VIDEO : Selects the input to the TV

VOL +/- : Adjusts the volume.

CH +/- : Selects a higher or lower preset channel.

17 Volume control buttons

MASTER VOL +/- : Adjusts the level from LINE OUT and HEADPHONES jacks.

REAR VOL +/- : Adjusts the level of the rear speakers.

CENTER VOL +/- : Adjusts the level of the center speaker.

MUTING : Mutes the output signal.

Getting Ready to Enjoy Surround Sound

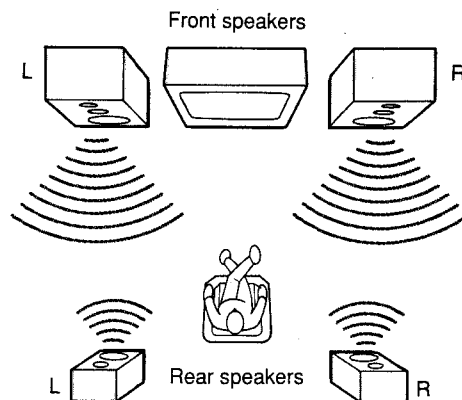
Positioning the Speakers

Where you place the speakers depends on the size and acoustics of the room where the system to be installed. The figures below are just examples.

We recommend that you experiment to find the speaker direction or location in which the most effective acoustics can be obtained.

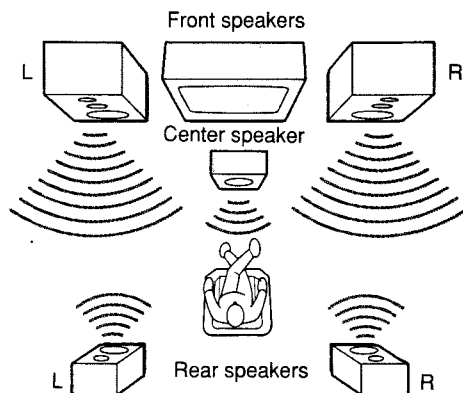
For a basic surround system

Two front and two rear speakers are necessary to enjoy the surround function.



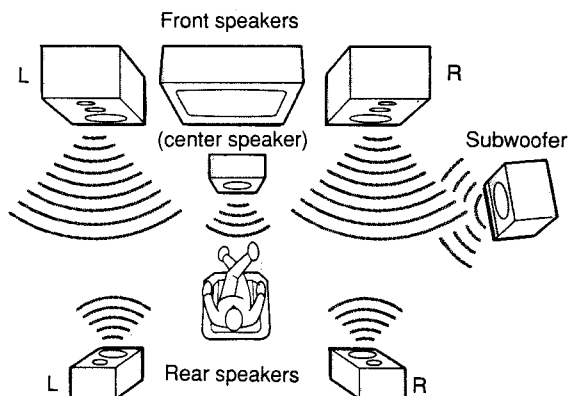
For the Dolby Pro Logic surround system

A center speaker is required in addition to the basic four speakers.



To obtain rich bass sound

Add a subwoofer to a 4- or 5-speaker system.



On speaker affinity

To enjoy the surround sound at its best, you should use the same type of speakers for the front, center and rear. If this is not possible, use speakers with the similar efficiency, impedance and sound.

Positioning a subwoofer

Position the subwoofer anywhere forward of your primary listening position. A deep bass sound is not as directional as the higher frequencies and therefore will not affect the stereo image.

Selecting the Pro Logic Mode (for Dolby Surround Mode)

In the Dolby surround mode, a speaker operation mode can be selected to match your speaker system.

Press PRO LOGIC MODE to select the appropriate mode:

NORMAL	Select this mode if you use a small center speaker. The bass sound of the center channel is output from the front speakers, as a small speaker cannot produce enough bass.
WIDE	Select this mode if you use a medium to big center speaker.
PHANTOM	Select this mode when you play back a Dolby surround program source without using a center speaker.
3ch LOGIC	Select this mode when you playback a Dolby surround program source only with the front and center speakers.
CENTER OFF	This mode is only used for adjusting the input balance in Dolby surround mode (refer to page 18).

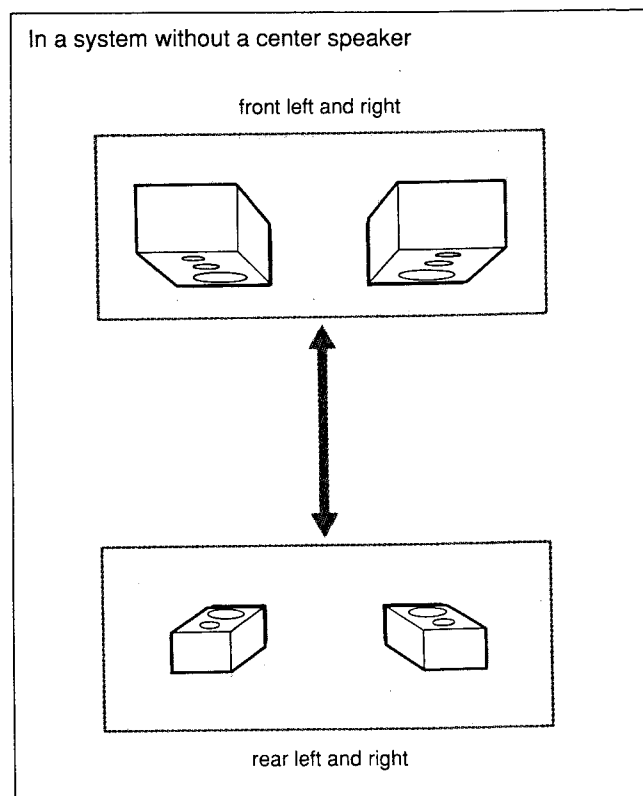
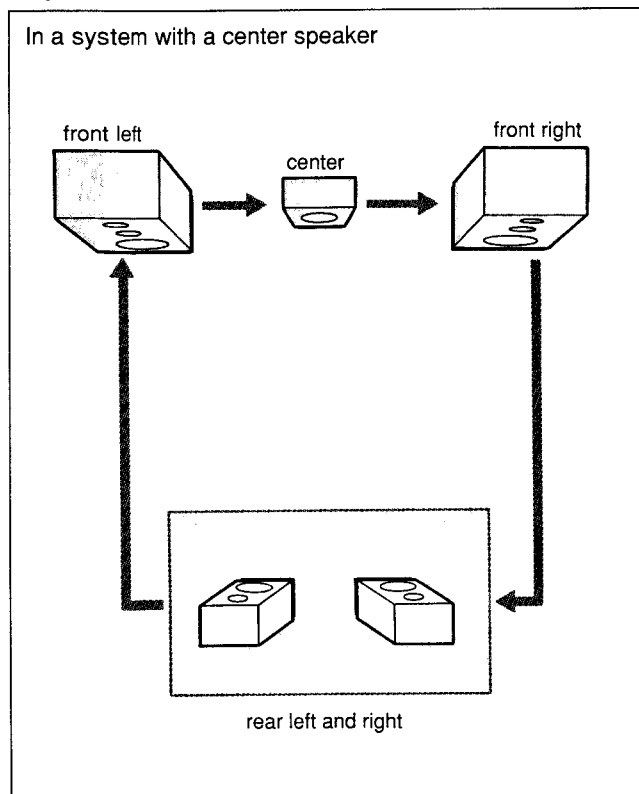
Adjusting the Speaker Volume

To enjoy the surround sound to the maximum on playing any program sources, adjust the front, rear, and center (if connected) speakers to the same volume level. The adjustment must be done with a test tone in the Dolby

surround mode, but the level once adjusted can be used for all surround modes.

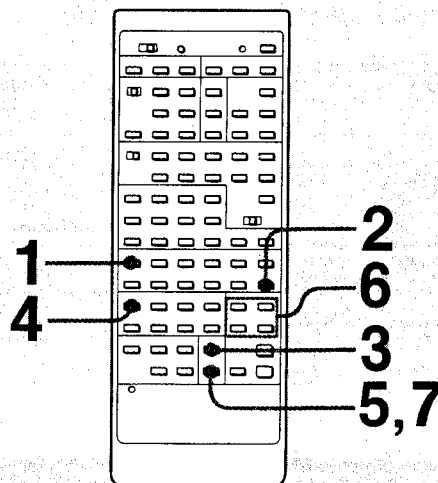
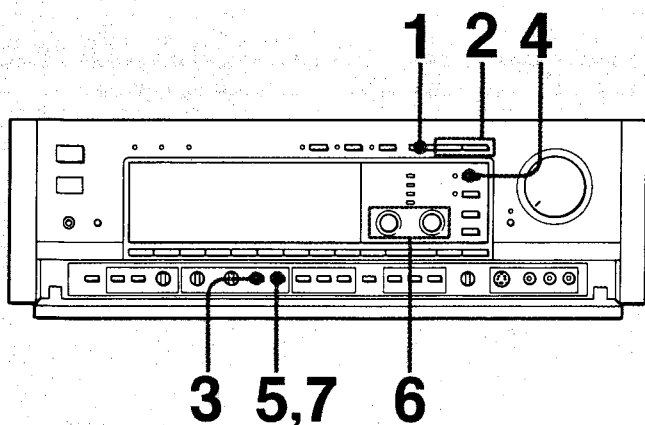
You can adjust the volume level from your listening position if you use the remote commander.

Sequence of the test tone



Getting Ready to Enjoy Surround Sound

In a system with a center speaker



Main unit

Remote commander

PRESET/USER

1

Press PRESET/USER until PRESET appears in the display.

PRESET/USER

SOUNDFIELD PROGRAM



2

Select the preset number 10 (Dolby surround mode). In other surround modes, a test tone is not output from the center speaker.

DOLBY SURROUND
10

PRO LOGIC
MODE

3

Press PRO LOGIC MODE to select NORMAL or WIDE, depending on the size of your center speaker (refer to page 15).

PRO LOGIC
MODE

MAIN PARAMETER



4

Press MAIN PARAMETER to select CENTER LEVEL - REAR LEVEL.

PARAMETER
MAIN

TEST
TONE

5

Press TEST TONE. The test tone will be output automatically from the front L, center, front R, and rear speakers (L and R) in succession.

TEST
TONE

6

Adjust the volume level of center and rear speakers so that it will be the same as the front speakers.



To adjust the volume level of rear speakers

REAR
VOL



To adjust the volume level of a center speaker

CENTER
VOL

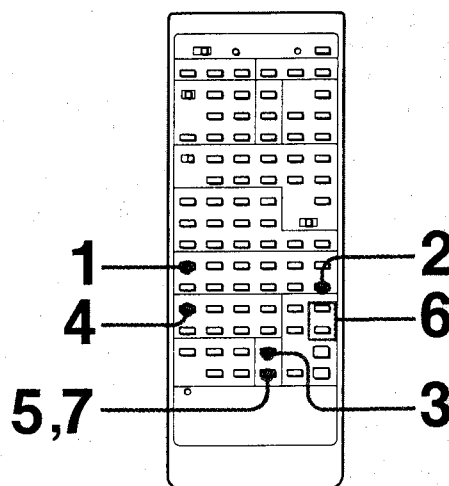
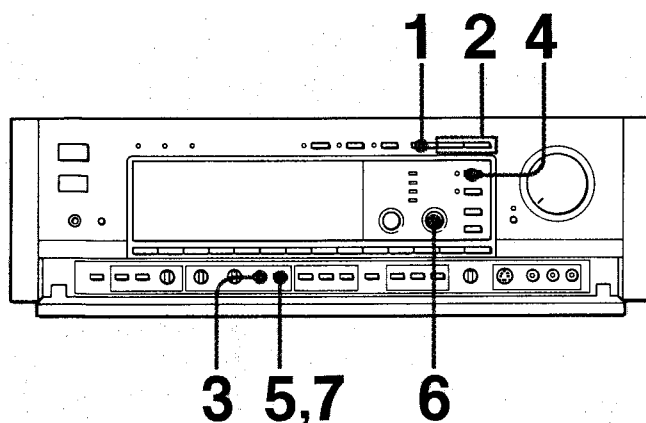
TEST
TONE

7

Press TEST TONE again to turn the test tone off.

TEST
TONE

In a system without a center speaker



Main unit

Remote commander

PRESET/USER

◀ 1

Press PRESET/USER until PRESET appears in the display.

▶

PRESET/
USER

SOUNDFIELD PROGRAM
▽ ▲

◀ 2

Select the preset number 10 (Dolby surround mode).

▶

DOLBY
SURROUND
10

PRO LOGIC
MODE

◀ 3

Press PRO LOGIC MODE until PHANTOM appears in the display.

▶

PRO LOGIC
MODE

MAIN PARAMETER
O

◀ 4

Press MAIN PARAMETER to select CENTER LEVEL - REAR LEVEL.

▶

PARAMETER
MAIN

TEST
TONE

◀ 5

Press TEST TONE. The test tone will be output automatically from the front speakers and rear speakers alternatively.

▶

TEST
TONE



◀ 6

Adjust the volume level of the rear speakers so that it is the same from both the front and rear speakers.

▶

REAR
VOL

TEST
TONE

◀ 7

Press TEST TONE again to turn the test tone off.

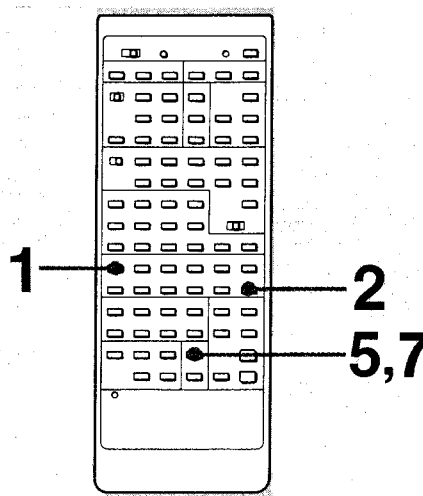
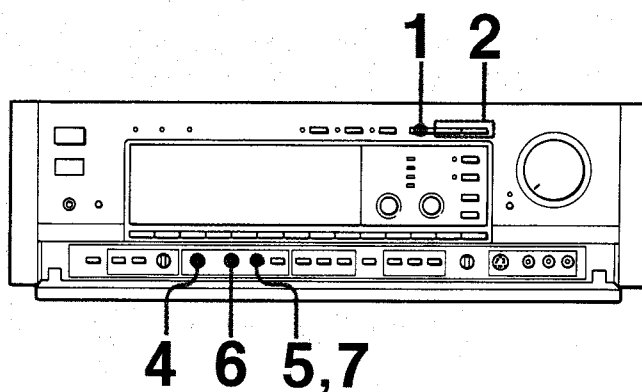
▶

TEST
TONE

Getting Ready to Enjoy Surround Sound

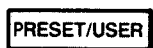
Adjusting the Input Level and Input Balance (for Dolby Surround Mode)

When playing back a Dolby surround processed video tape or video disc, adjust the input level and input balance to obtain the best surround effect.



Main unit

Remote commander



◀ 1

Press PRESET/USER until the PRESET appears in the display.



◀ 2

Select the preset number 10 (Dolby surround mode).



3

Play back the program source (refer to page 21).



◀ 4

Adjust the input level by turning INPUT LEVEL clockwise as far as possible but not so far that the OVER indicator is displayed at the highest level.



◀ 5

Press PRO LOGIC MODE until CENTER OFF appears in the display.



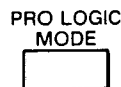
◀ 6

Adjust the input balance so that the audio level is minimized during the scene of conversation (where the sound is monaural).



◀ 7

Press PRO LOGIC MODE to resume the Pro Logic Mode selected on page 15.



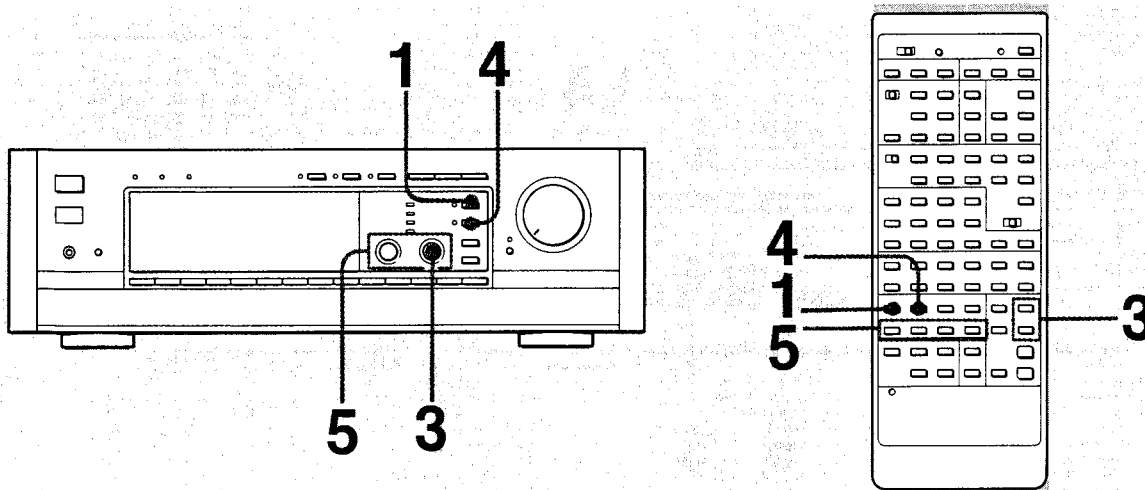
Even for video software which does not carry the or mark

We recommend to adjust the input level and input balance because some commercially available software may have

Dolby surround processed sound tracks even though it is not so indicated on the package.

Adjusting the Volume Level of Rear Speakers (for Dolby Surround Mode)

When playing back a Dolby surround processed video tape or video disc, adjust the volume level of the rear speakers to obtain the natural surround sound.



Main unit

Remote commander

MAIN PARAMETER
○

◀ **1** Press MAIN PARAMETER to select CENTER LEVEL - REAR LEVEL. ▶

PARAMETER
MAIN

2 Play back the program source (refer to page 21).



◀ **3** Adjust the volume level of the both rear speakers. ▶



SUB PARAMETER
○

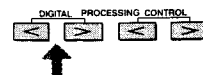
◀ **4** Press SUB PARAMETER until "Each Rear" appears in the display window. ▶

PARAMETER
SUB

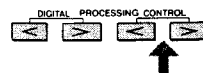
5 Finely adjust the volume level of each rear speaker to obtain accurate balance.



◀ To adjust the volume level of the left rear speaker ▶



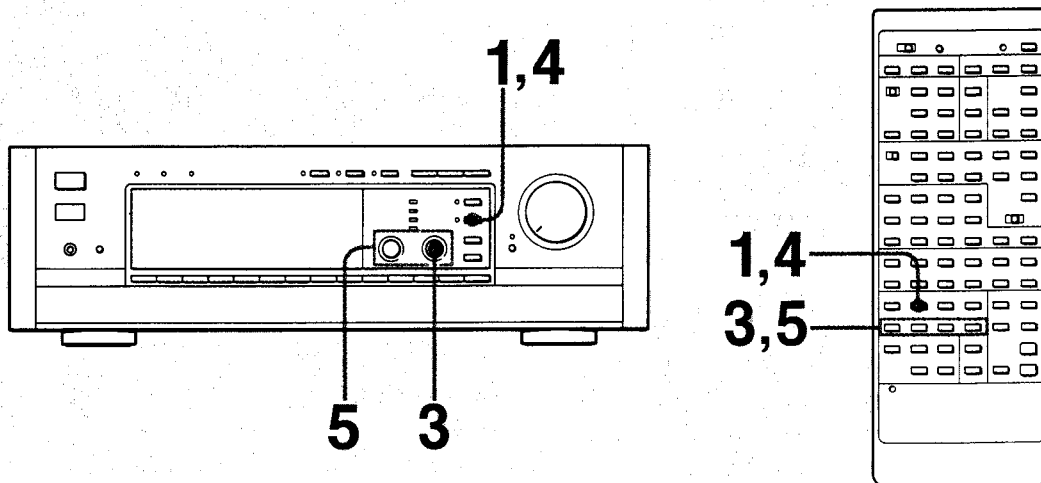
◀ To adjust the volume level of the right rear speaker ▶



Getting Ready to Enjoy Surround Sound

Adjusting the Delay Time of the Rear Speakers (for Dolby Surround Mode)

The delay time is a time between the surround sound from the front and that from rear speakers. The delay time is adjustable from 15 ms to 30 ms.



Main unit

Remote commander

SUB PARAMETER
o

◀ **1**

Press SUB PARAMETER until "Both Del." appears in the display window.

▶

PARAMETER SUB

2

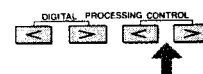
Play back the program source (refer to page 21).



◀ **3**

Adjust the delay time for the both rear speakers.

▶



SUB PARAMETER
o

◀ **4**

Press SUB PARAMETER until "Each Del." appears in the display window.

▶

PARAMETER SUB

5

Finely adjust the delay time for each rear speaker.



◀

To adjust the delay time of the left rear speaker

▶



◀

To adjust the delay time of the right rear speaker

▶



Note

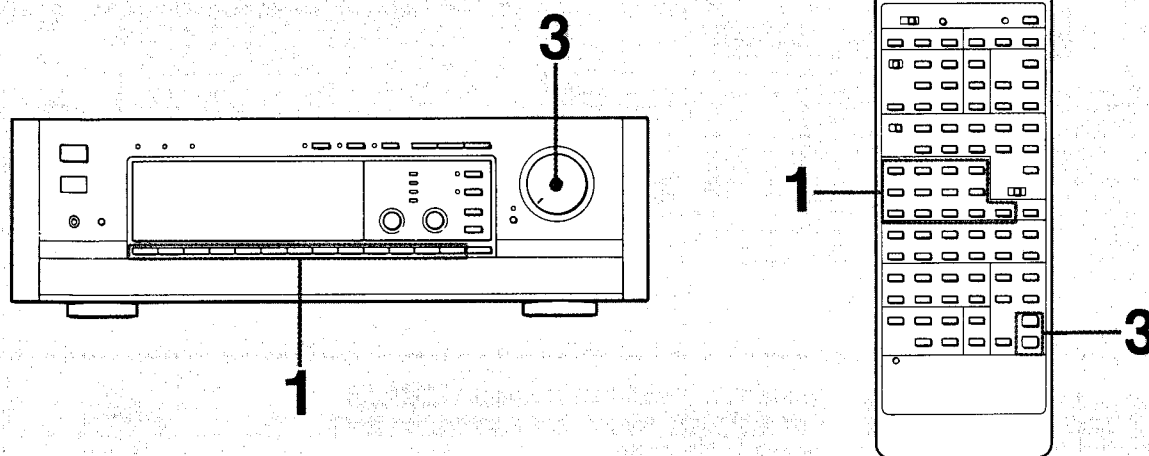
The volume level and delay time of rear speakers can be adjusted even in the 3ch LOGIC mode.

Listening to / Watching Program Sources

Basic Operation

Preparation

- Turn on the connected audio/video equipment.
- Make sure the indicators of PARAMETRIC EQ, DYNAMICS, and SURROUND are off. If they are on, press the appropriate button(s) to turn them off.
- Make sure the MUTING indicator is off. If it glows, press MUTING to turn it off.
- If two input functions (VISUAL and AUDIO) appear in the display window, press MIX until they go off. If you want to mix visual and sound from different program sources, refer to the next page.

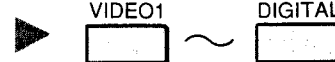


Main unit

Remote commander



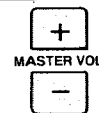
1 Select the program source.
For the digital audio input, press DIGITAL to select the desired digital input, COAXIAL, OPTICAL 1, or OPTICAL 2.



2 Play back the selected program source.



3 Adjust the MASTER VOLUME.

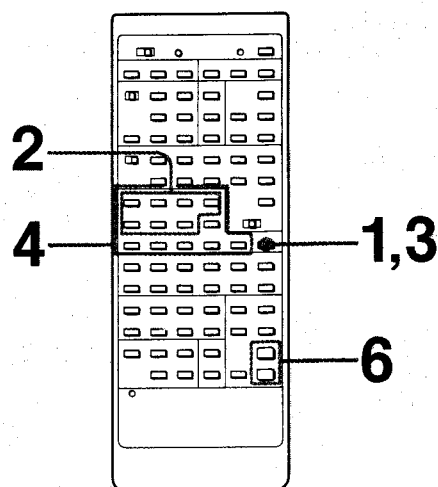
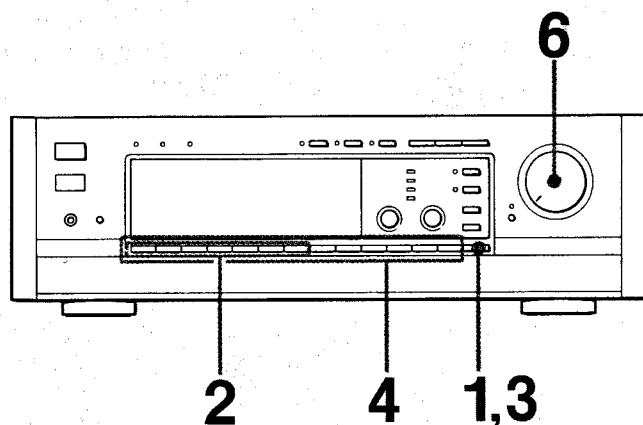


Listening to / Watching Program Sources

Combining the Video Image with the Sound from Another Program Source

The MIX function allows you to combine a video image with sound from another program source as background music.

This function also allows you to listen to simulcast TV/FM programs.



Main unit



◀ 1

Press MIX. Two input functions (**VIDEO** and **AUDIO**) appear, and a triangular mark points to **VIDEO** .



◀ 2

Select the video program source.



◀ 3

Press MIX. The triangular mark points to **AUDIO** .



◀ 4

Select the audio program source. The audio signal of a video program can also be selected.



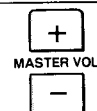
5

Play back the both audio and video program sources.



◀ 6

Adjust the MASTER VOLUME.



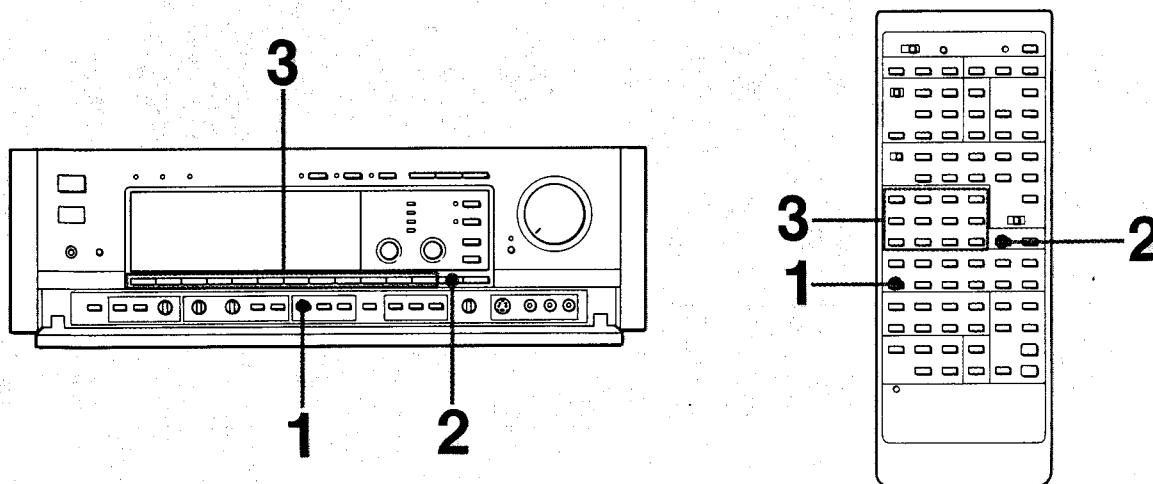
If MIX is pressed after both video and audio program sources have been set

The mix function is cancelled and the audio and video signal of the selected video program source is output.

Assigning Digital Audio Input to Another Input Function Button

You can assign digital input to another input function button. For example, if you connect the CD player to the OPTICAL 1 jack and assign the OPTICAL 1 to the CD function button,

the CD player will be selected when you press the CD function button.



Main unit

Remote commander

MEMORY

1

Press MEMORY. **MEMORY** appears in the display window.



MEMORY

DIGITAL

2

Press DIGITAL to select the desired digital input – COAXIAL, OPTICAL 1, or OPTICAL 2.



DIGITAL

VIDEO 1 ~ PHONO

3

Press the input function button you want to assign the digital input to.



VIDEO 1 ~ PHONO

To cancel the assignment

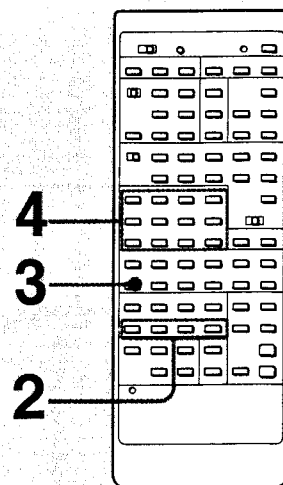
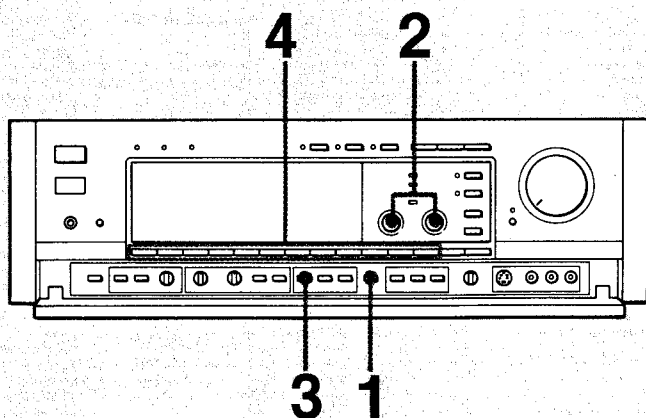
- 1 Press the input function button you want to cancel.
- 2 Press CLEAR. The assignment is cancelled and analog input will be reassigned.

Listening to / Watching Program Sources

Putting Your Own Label on an Input Function Button

You can put a label of up to 9 characters on an input function button.

The label will appear in the display window when that function is selected.



Main unit

CHARACTER



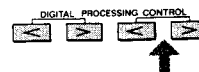
1 Press CHARACTER. The name of input function set appears in the display window.

2

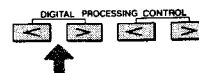
Create a name. You might want to label three of video function buttons as VHS, Beta, and 8mm, for example.



To select a letter or number



To move the cursor



MEMORY

3

Press MEMORY. **MEMORY** appears in the display window.



4

Select the input function to be labeled. The created name is labeled to the input function button. Repeat the procedure to label other input function buttons.



Usable letters and symbols

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y
Z	[	\	\]	_	↓	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q	r	
s	t	u	v	w	x	y	z	!	→	#	←	%	&	'	(	)	*	+	-	.	/	0		
1	2	3	4	5	6	7	8	9	:	;	<	=	>	?	↑									

Note

It is not possible to label the DIGITAL function button.

To resume the original name of the input function

Repeat steps 1 to 4 to input the original name.

Enjoying the Factory-preset Digital Sound Effects

What are the Digital Sound Effects?

The TA-E1000ESD incorporates digital signal processing circuitry which consists of a digital surround processor, a digital parametric equalizer, and a digital dynamics controller. The digital surround processor electronically reproduces the acoustics of various listening situations. The digital parametric equalizer controls the output level of specific frequencies to finely adjust the frequency response,

and the digital dynamics controller compresses or expands the dynamic range of the program source.

Using these three digital sound effects, you can give your room the optimum acoustics for the kind of music you want to listen to.

Selecting the Factory-preset Soundfield Program

Ten recommended soundfield programs (combinations of settings for the surround, parametric equalizer, and dynamics controller) have been preset in the factory. Since these programs are appropriate for the most types of music and listening situations, you can enjoy the digital sound effects by just selecting the soundfield programs according

to the program source, etc. You can also set individual functions and parameters to maximize the effect and/or to shape the sound to your taste. For instruction on how to set each parameter, refer to "Making most of the digital sound effects" on page 30.

Main unit

Remote commander

PRESET/USER

1 Press PRESET/USER until PRESET appears in the display window.

PRESET/
USER

SOUNDFIELD PROGRAM

2 Select the soundfield program by referring to the table below:

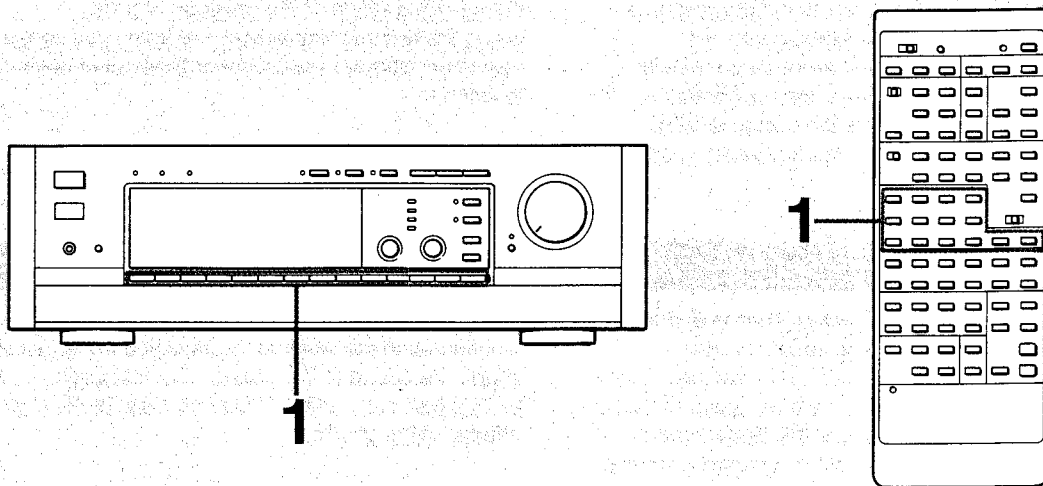
HALL 1
1

DOLBY
SURROUND
10

Preset number	Applications
1	For orchestral music
2	For chamber music or an instrumental solo
3	For operas or musicals
4	For church music or the pipe organ
5	For jazz
6	For disco music
7	For a live concert in an open-air stadium.
8	For music programs on video tapes or video discs.
9	For movie programs on video tapes or video discs.
10	For Dolby surround encoded video programs.

Recording Audio/Video Program Sources

Basic operation



Main unit

Remote commander



◀ 1

Select the program source.
If you want to combine video image and the sound from another audio source, press MIX to select them independently (refer to page 22).



2

Play back the selected program source.

3

Set the video or tape deck in the recording mode.

Notes on output

You can operate two or more video or tape decks for recording at the same time as the audio (and video) signals of the program source is output simultaneously through all recording output jacks except the digital recording out jack. The digital recording out jack outputs signal only when COAXIAL, OPTICAL 1, or OPTICAL 2 is selected.

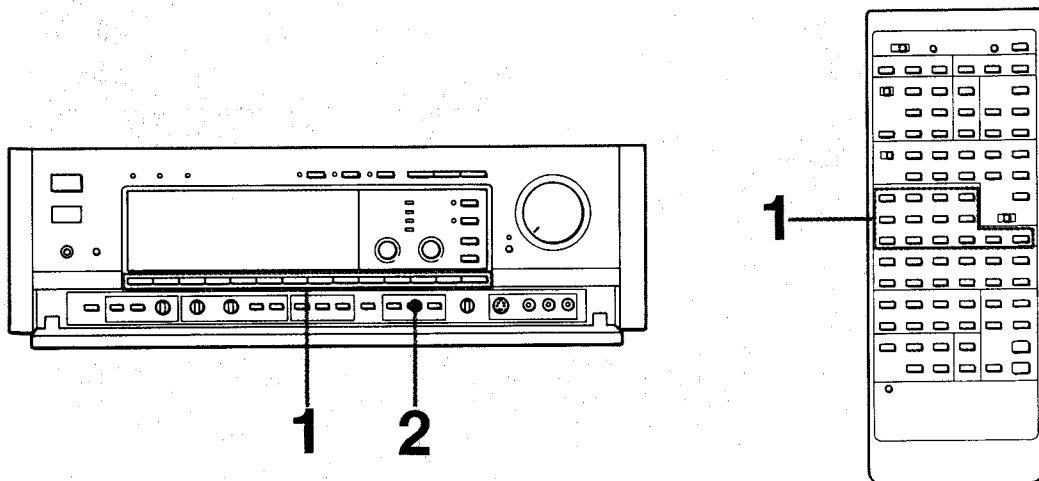
Recording program sources with the digital sound effects

Press EFFECT REC. **EFFECT REC** appears in the display window and the signal of program source with the digital sound effects are output from all analog recording out jacks.

This function does not activate when you record the program source while listening to/watching another (refer to page 27).

Recording program sources while listening to/watching another

This unit has separate circuits for line output and for recording, so you can record a program source while listening to/watching another.



Main unit

Remote commander



1

Select the program source to be recorded. If you want to combine a video image and the sound from another audio source, press MIX to select these sources independently (refer to page 22).



2

Press SET. **REC OUT SET** appears in the display window and the displayed combination of audio/video recording outputs is preset for recording.

3

Play back the selected program source(s) to be recorded.

4

Set the video or tape deck into the recording mode. Press the desired input function button to select the program source to be listened to/watched.

To check the preset recording outputs

Press CHECK to display them in the display window. The input function display will resume after a few seconds.

You cannot preset the recording output in the following cases

- When you are listening to digital input sources (COAXIAL, OPTICAL 1, or OPTICAL 2).
- When you turn on the effect recording function (refer to page 26).

To record a listening program source

Press SET to turn off the **REC OUT SET** in the display window. The program source being listened to/watched is output from the REC OUT jacks.

Monitoring while recording

When a 3-head tape recorder is used, the recorded result can be monitored. When the recording is done on a tape recorder connected to the TAPE 1 or TAPE 2 jacks, the recorded sound can be monitored by selecting TAPE 1 or TAPE 2, respectively.

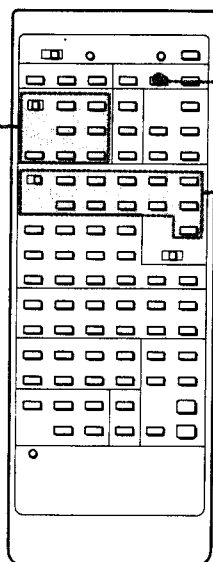
Using the Remote Commander

- When you manipulate a switch or button on the commander, be sure to point the head of the commander toward the remote control sensor on the front of the receiver.
- If there is an obstacle between the amplifier and the head of the commander, the amplifier may not be controlled remotely.

Programming Signals of Other Audio/Video Equipment with RM-P1000

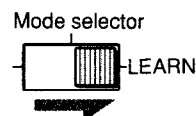
Insert batteries before operation.

You can program signals for each function by switching the CD/VDP selector.



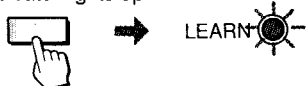
You can program signals for each function by switching the TAPE/VTR and VTR (1, 2, 3) selectors. DUAL, ANT TV/VTR, and CH+/- buttons cannot be programmed when the TAPE/VTR selector is set to TAPE.

1 Set the mode selector to LEARN.



2

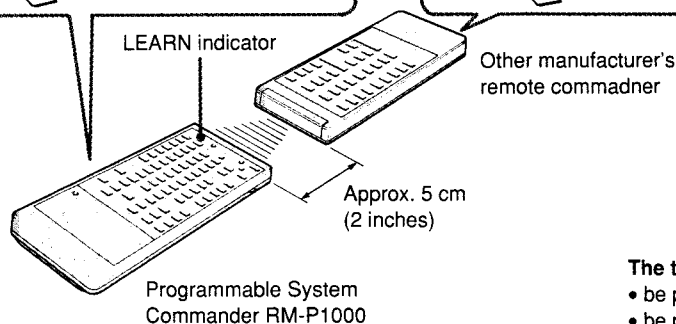
① Press and hold the button on which a new remote-control signal is to be programmed until the LEARN indicator lights up.



② Press and hold the button whose signal is to be programmed.



③ Release the button(s) after the LEARN indicator goes off.

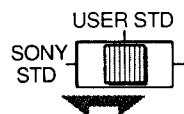


The two remote commanders must:

- be placed straight and head to head.
- be placed at a distance of approx. 5 cm (2 inches).
- not be moved during the programming operation.

3 Repeat above steps for each button to be programmed.

4 Set the mode selector to USER STD or SONY STD.



After programming

Be sure to test if the equipment really works with the programmed signals.

If the LEARN indicator flashes or does not go off in step 2-②, ③

The memory capacity is full. This occurs when other signals stronger than the remote-control signals have been stored because the signals were programmed in a noisy environment or the remote commanders were placed too far apart from each other.

→ Clear all the signals following the procedure on the right and program again from the beginning under the proper conditions.

Notes on programming

- Remote-control signals of equipment of manufacturers other than Sony can be programmed only when they are compatible with the infrared wireless remote control system. Since the programmable commander can "learn" only the signals output from another remote commander, it cannot control equipment that do not use a remote commander. Also, note that there are some special remote-control signals that cannot be programmed.
- Do not attempt to use the programmable system commander with an air conditioner or other household appliances.

To program a new signal onto a previously programmed button

Follow the programming procedure.

The previously programmed signal is cleared and replaced by the new signal.

To clear all programmed signals

- 1 Set the mode selector to LEARN.
- 2 Press and hold any button of the programmable area until the LEARN indicator lights up.
- 3 Press PROGRAM CLEAR until the LEARN indicator flashes and goes off.

Note

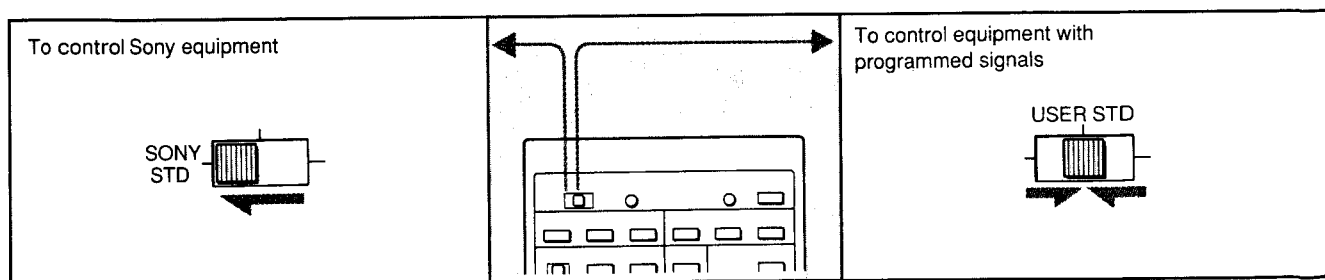
It is not possible to clear the programmed content of just one button.

To program a signal onto the ● REC button in the TAPE or VTR section

It is not possible to operate any equipment with only the ● REC button. To program a signal on the ● REC button, press and hold the ● REC button and the button on the right of the ● REC button at the same time in step 2-①.

Controlling Equipment

By switching the mode selector as shown below, a single button alternately controls Sony equipment and equipment of another manufacturer.



When Sony equipment cannot be remote-controlled

Program the signal in the same way as for equipment from other manufacturers. In this case, even with Sony equipment, set the mode selector to USER STD.

Battery life

Normal operation can be expected for about a half year using Sony SUM-3 (NS), and a year using Sony AM-3 (NW) alkaline batteries. If the LEARN indicator does not light when a button is pressed, the batteries are almost exhausted. When the batteries are exhausted, the remote commander can no longer operate the unit or programming becomes impossible.

If this happens, replace both batteries with new ones. We strongly recommend the use of alkaline batteries.

If no signal has been programmed

The programmable commander can control Sony equipment even when the mode selector is set to USER STD.

If the equipment works incorrectly

Press RESET and operate again. The programmed contents of the buttons are not cleared by pressing RESET.

Making Most of the Digital Sound Effects

Function of the Digital Sound Effects

The TA-E1000ESD incorporates digital signal processing circuitry which consists of a digital surround processor, a digital parametric equalizer, and a digital dynamics controller. Although 10 soundfield programs (recommended combinations of each settings) are already preset for easy use (refer to page 25), you can also manipulate various parameters to finely tune the factory-preset settings to your room, or create original sound effects as you like.

The main parameters are the fundamental variable in the acoustical setting such as the room size and seat position, while the sub parameters are used for fine adjustments such as reverberation time and level of reflection. To understand the digital sound effects, use the demonstration mode incorporated in the unit.

Table of Adjustable Parameters

	HALL1	HALL2	OPERA	CHURCH	JAZZ CLUB	DISCO	STADIUM	LIVE CONCERT	THEATER	DOLBY SUR
ROOM SIZE	●	●	●	●	●	●	●	●	●	
WALL	●	●	●	●	●	●	●	●	●	
SEAT POSITION	●	●	●	●	●	●	●	●	●	
CENTER LEVEL* REAR LEVEL	●	●	●	●	●	●	●	●	●	●
PARAMETRIC EQ	●	●	●	●	●	●	●	●	●	
Effect Level	●	●	●	●	●	●	●	●	●	
Early Reflection Time	●	●	●	●	●	●	●	●	●	
Early Reflection Level	●	●	●	●			●	●		
Reverb-Time	●	●	●	●			●	●		
Spread	●	●	●	●			●	●		
Reverb-Density	●	●	●	●			●	●		
Dynamics	●	●	●	●	●	●	●	●	●	
Both Delay Time										●
Each Delay Time										●
Each Rear Level	●	●	●	●	●	●	●	●	●	●

* Although the CENTER LEVEL is adjustable in all modes, sound will be output from the center speaker only in the LIVE CONCERT, THEATER, and DOLBY SUR modes.

To start the demonstration mode

While pressing DIMMER, press VIDEO 1. The function of each parameter is displayed in the display window.

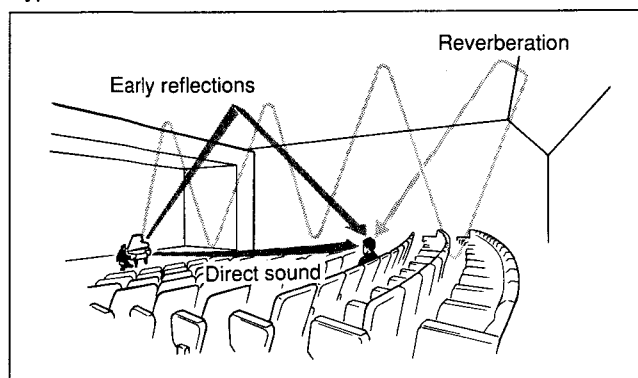
Using the Digital Surround System

Understanding the Digital Surround System

The sound heard in a place such as a concert hall or a movie theater consists of direct sound, an early reflected sound (early reflections) and a reverberative sound (reverberation). The acoustics of the room affect the way these three sounds are heard. We can estimate the size or the type of a hall by listening to and differentiate these three kinds of sound.

The TA-E1000ESD reproduces the early reflections and the reverberation using its digital signal processor and allows you to design a variety of soundfields in your own room. The unit incorporates 10 types of surround modes, and within each mode, you can adjust several parameters to maximize the effect in your listening room.

Types of the sound

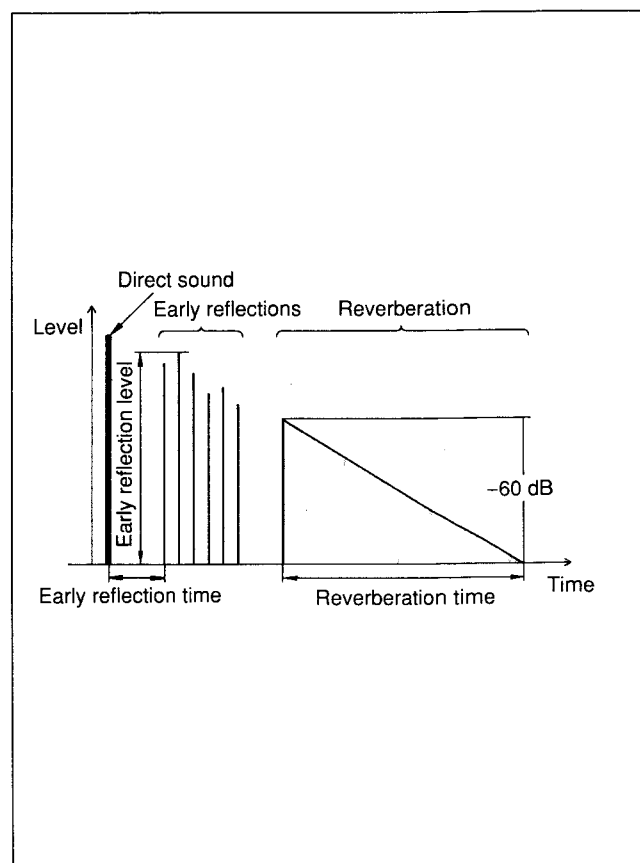


Note

Each surround mode has several internal (fixed) parameters in addition to the adjustable parameters explained in this section.

Therefore, surround modes will not become the same even if you set all adjustable parameters the same.

Transition of the sound



Characteristics of the Surround Modes

Surround mode	Characteristics
HALL 1	Acoustics of a rectangular (shoebox type) concert hall with a capacity of about 2,000.
HALL 2	Acoustics of a fan shaped (vineyard type) concert hall with a capacity of about 2,000.
OPERA	Acoustics of an opera house.
CHURCH	Acoustics of a church with a high vault.
JAZZ CLUB	Acoustics of a jazz club with clearly reflected sounds.
DISCO	Acoustics of a disco with powerful reverberation and dynamic bass sound.
STADIUM	Acoustics of an outdoor stadium with a capacity of 30,000.
LIVE CONCERT	Acoustics of a large concert hall.
THEATER	Acoustics of a movie theater.
DOLBY SUR	Decodes movie programs processed with the Dolby surround.

Using the Digital Surround System

Adjusting the Main Parameters

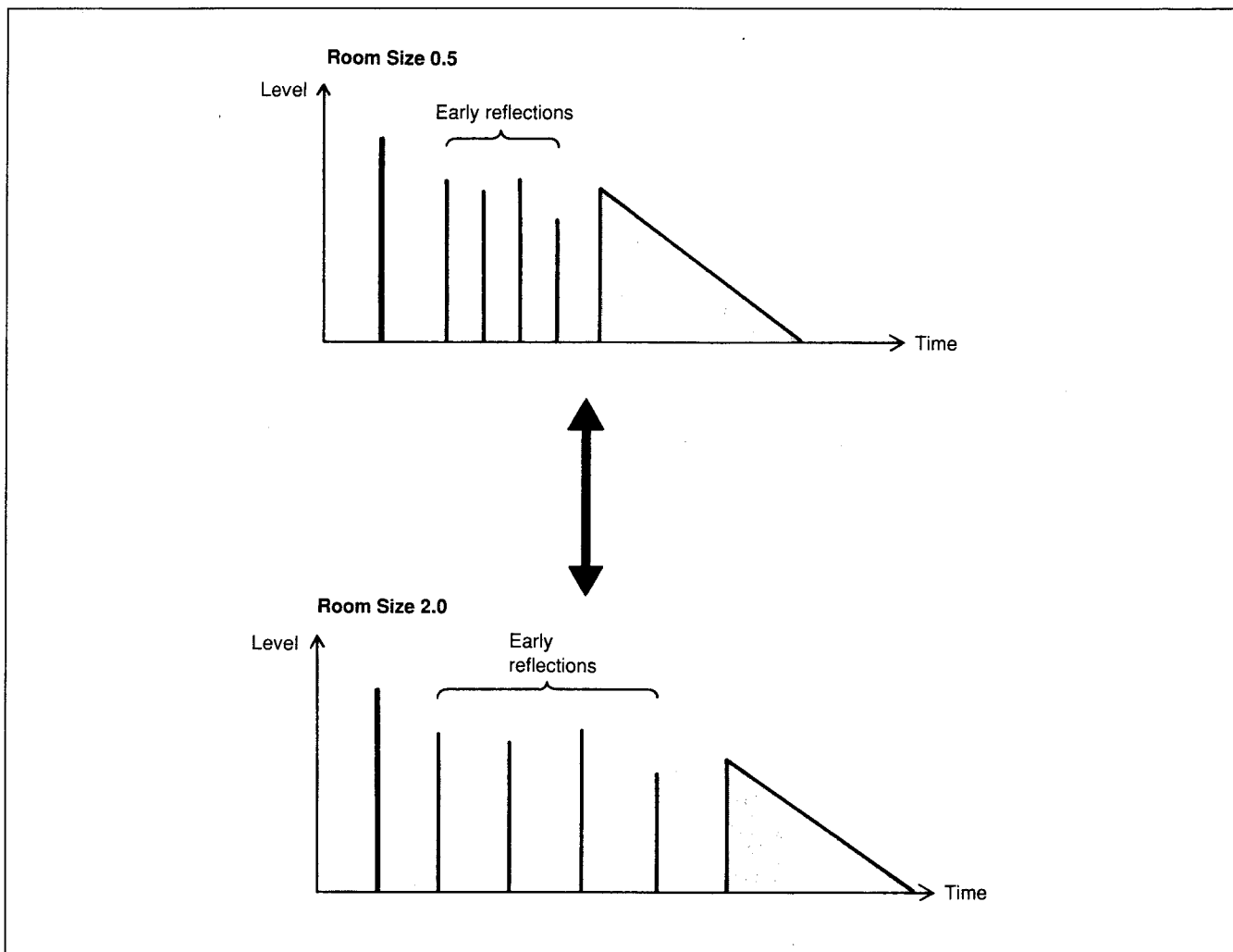
Before adjusting parameters, play back the program source, and press SURROUND to turn on the surround function.

You can adjust parameters while listening to the actual sound. To turn off the surround function, press SURROUND again to turn off the indicator.

Simulating the Room Size

The sound emitted from a sound source is reflected many times between the left and right walls, ceiling, and floor until it reaches our ears. In a large room, the sound takes more time to bounce from one surface to another than in a smaller room.

The ROOM SIZE parameter controls the spacing of early reflections to simulate the room size. The standard room size for each surround mode is designated as 1, and you can adjust this parameter from 0.5 to 2.0. The higher the number set, the larger the size of the room simulated.



Main unit

Remote commander

MAIN PARAMETER
0



1

Press MAIN PARAMETER to select ROOM SIZE - WALL.

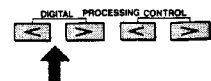


PARAMETER
MAIN



2

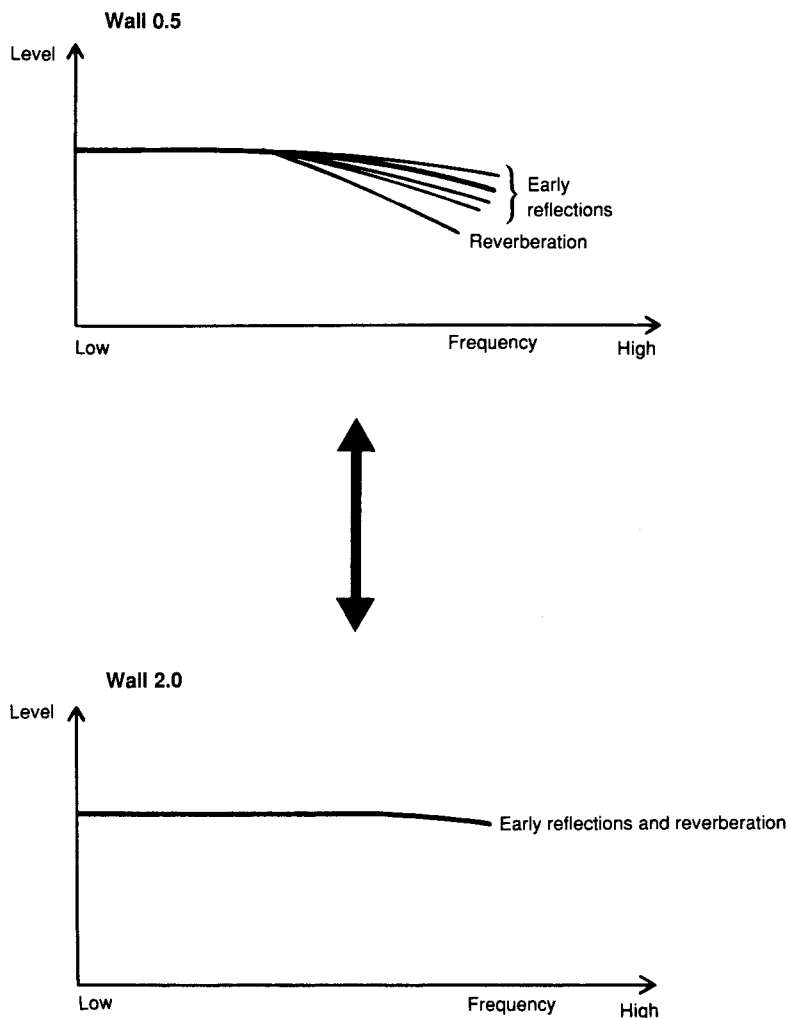
Adjust the ROOM SIZE parameter.



Simulating the Wall Material

When sound is reflected by a wall made of soft material such as wood or a wall covered with a curtain, the high-frequency components are reduced. A hard wall is highly reflective and does not significantly effect the frequency response of the reflected sound.

The WALL parameter controls the level of high frequencies to simulate the wall material. The standard wall made of wood is designated as 1, and you can adjust this parameter from 0.5 to 2.0. The higher the number set, the harder the wall simulated.



Main unit

Remote commander

MAIN PARAMETER
○



1

Press MAIN PARAMETER to select ROOM SIZE - WALL.

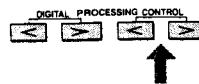


PARAMETER
MAIN



2

Adjust the WALL parameter.

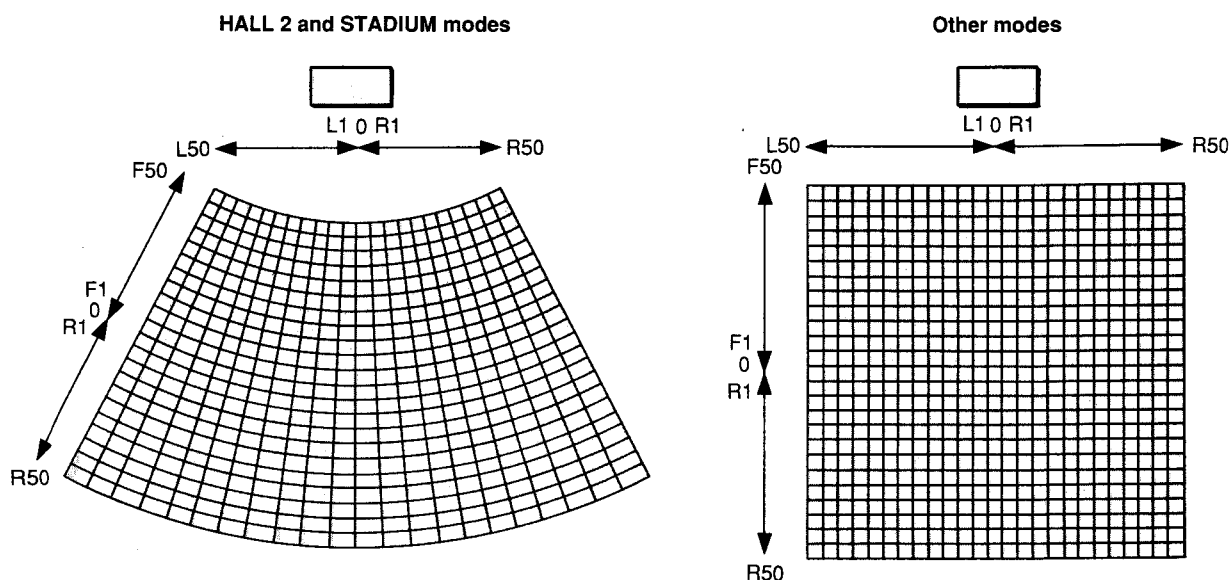


Using the Digital Surround System

Simulating the Seat Position

When you sit in the front of a room, you will hear more direct sound from the front speakers, and the component of reflected sounds from the front speakers grows as you move forward to rear. Similarly, the component of reflected sound changes when you move from left to right, and vice versa. The SEAT POSITION parameter controls the balance of the direct and reflected sound and other components of sound to simulate your listening position.

The center position is designated as 0, both in the rear - front, and left - right parameters, and you can adjust the position in 50 increments in each direction. The higher the number set, the more your position will be offset from the center of the room.



Main unit

Remote commander

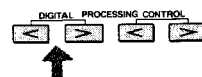
MAIN PARAMETER
O

1 Press MAIN PARAMETER to select SEAT POSITION.

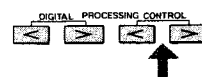
PARAMETER
MAIN



2 Adjust the REAR - FRONT parameter.

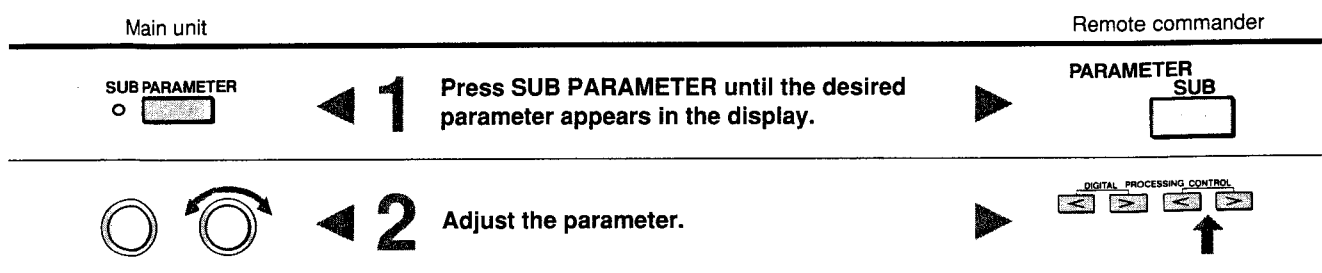


3 Adjust the LEFT - RIGHT parameter.



Adjusting the Sub Parameters

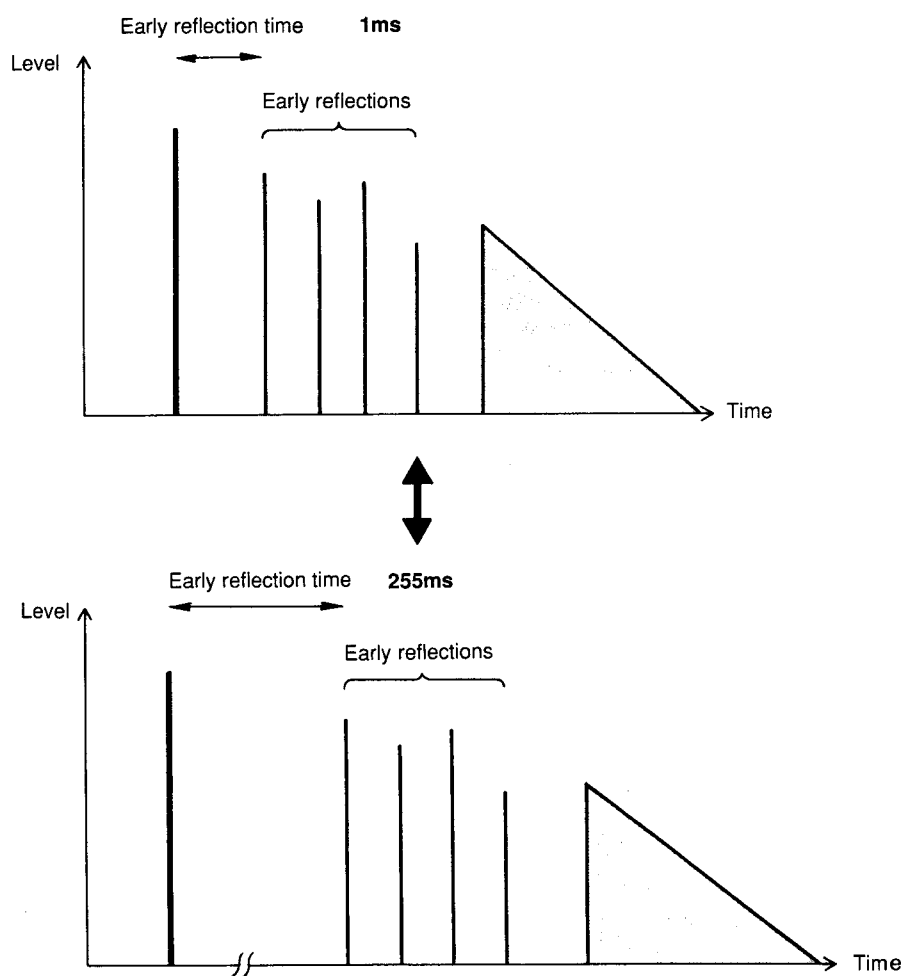
Basic Operation



Early Reflection Time

The early reflection time is the key parameter which determines the room size and listening position. Adjustment of this parameter will vary the time required for the sound to reach to the listening position.

The adjustable range is from 1 ms to 255 ms, and the longer the time, the longer you will feel the distance to the origin of the sound.

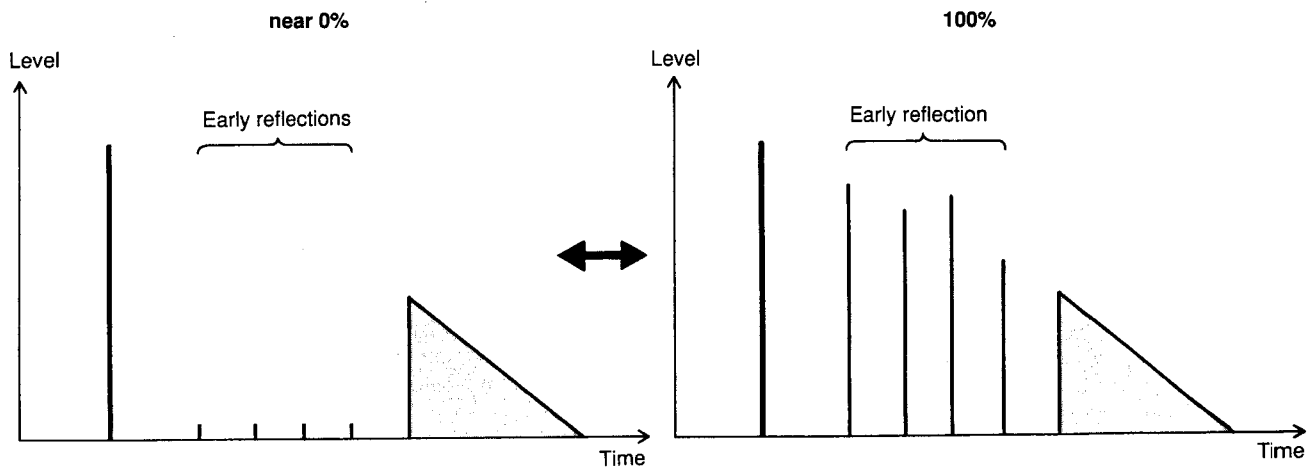


Using the Digital Surround System

Early Reflection Level

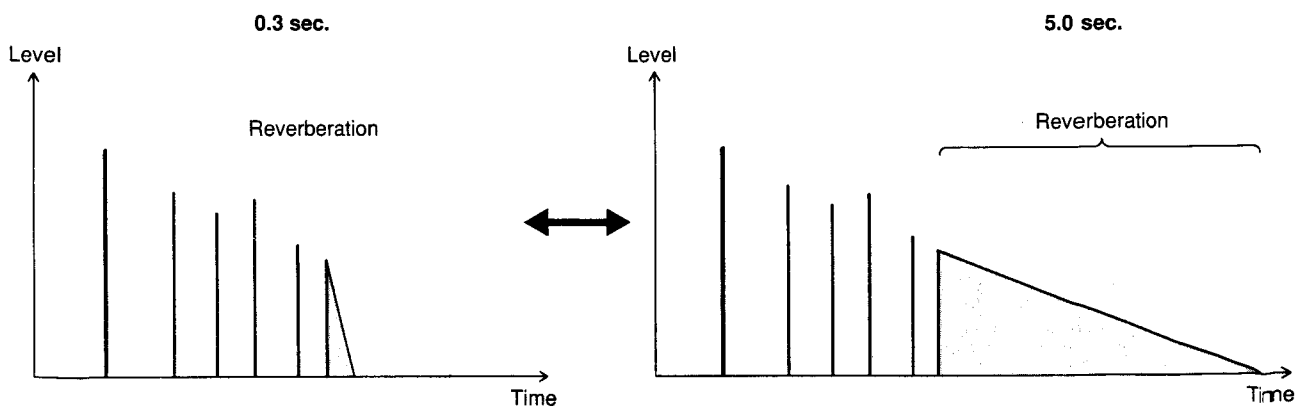
The early reflection level controls the acoustic liveness of the room. The adjustable range is from 0 to 100%, and the

percentage gets larger, the room becomes more "live", and as it gets smaller, the room becomes "dead".



Reverberation Time

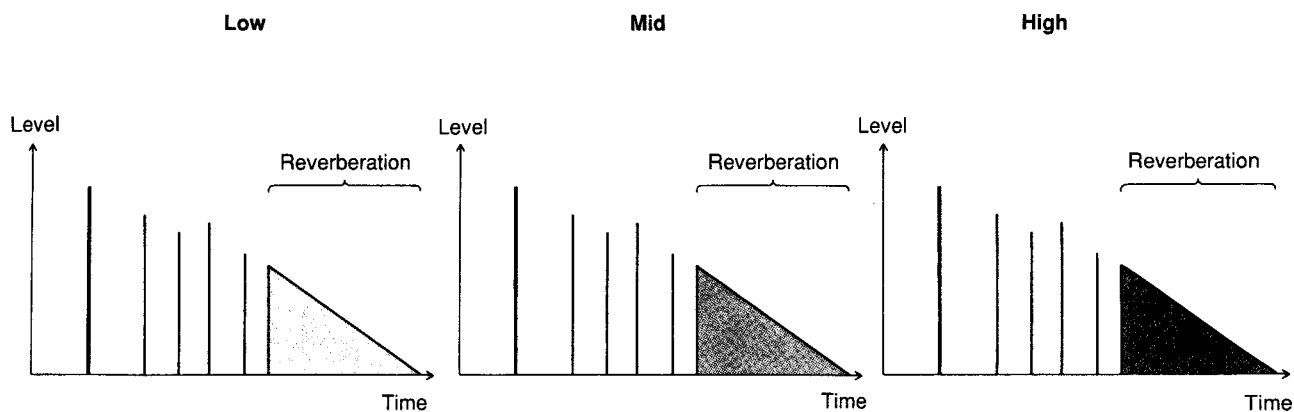
This parameter adjusts the length of the reverberation – the time required for reverberative sound to decrease to -60dB. The adjustable range is from 0.3 to 5.0 sec.



Reverberation Density

The reverberation density parameter adjusts the density (number of responses) of the reverberation to obtain natural reverberation for various program sources. Usually set this parameter to Mid.

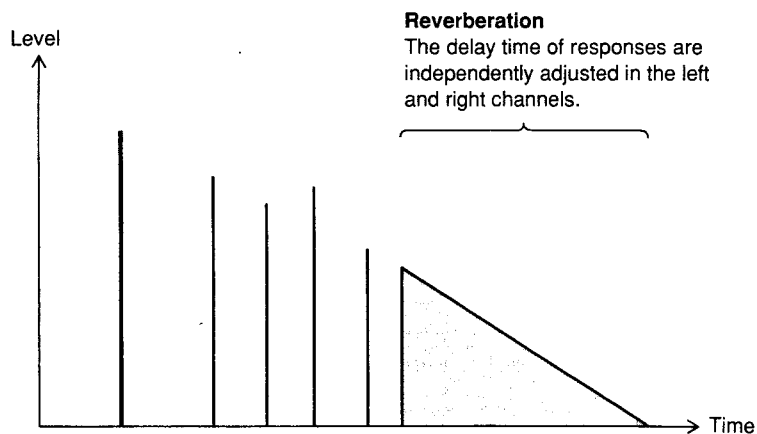
When the program source itself is very reverberative, like a live recording, set it to Low. Set it to High when the program source is not reverberative.



Spread

The spread parameter adjusts the delay time of the responses in reverberation from the left and right channels to simulate the width of the soundfield.

The standard is designated as 1, and the spread is adjustable from 0.5 to 2.0. The higher the number set, the wider the soundfield.

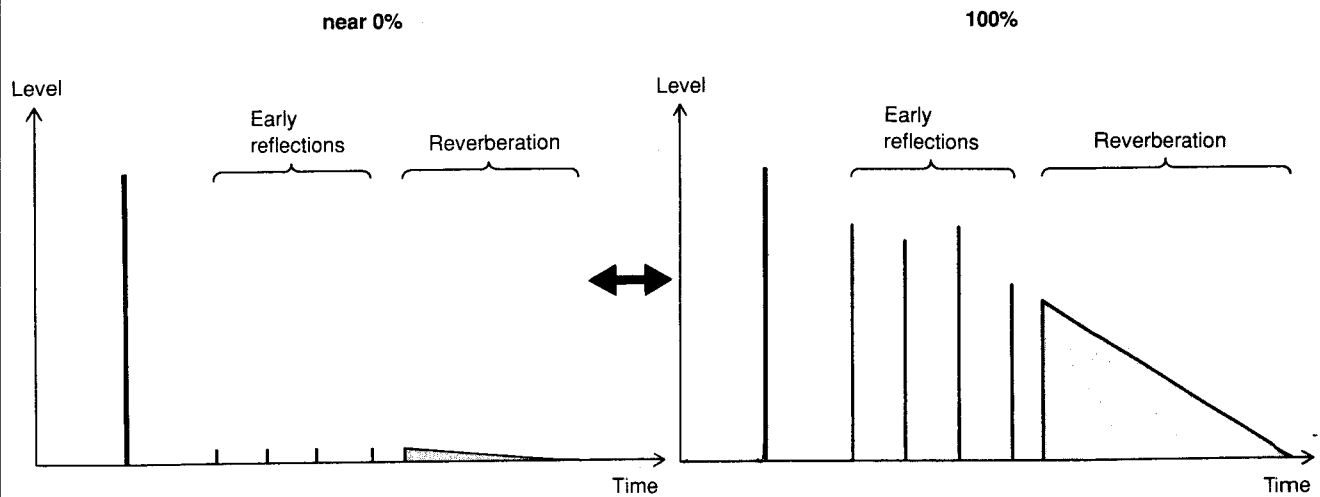


Using the Digital Surround System

Effect Level

This parameter adjusts the level of early reflections and reverberation. The adjustable range is from 0 to 100%, and as the percentage gets larger, the room becomes

more “live”, and as it gets smaller, the room becomes “dead”.



Using the Digital Parametric Equalizer

Understanding the Digital Parametric Equalizer

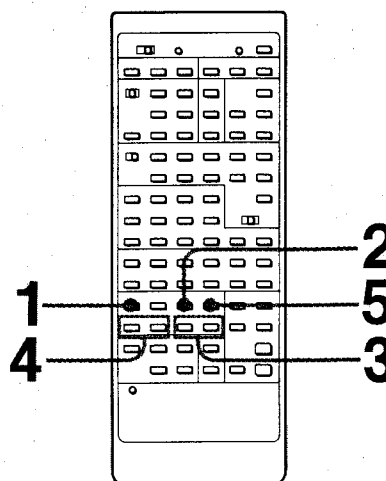
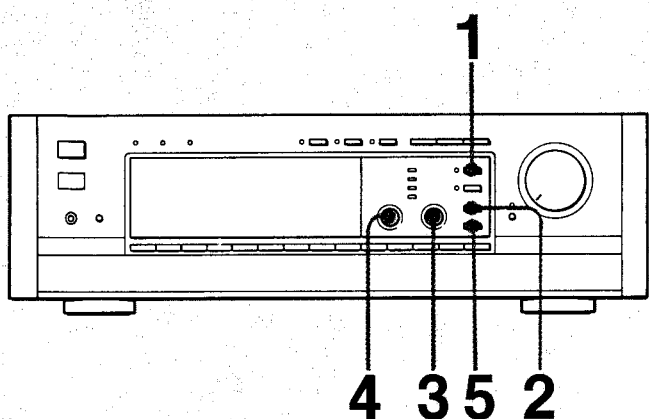
The parametric equalizer is a tone control system with adjustable center frequency and slope(Q). The TA-E1000ESD provides flexible equalization using a 3-band parametric equalizer with independent control of level, center frequency, and slope. Because those parameters

and equalization curve are displayed in the display window, you can accurately adjust the sound quality by referring them. The parametric equalizer effects all line output signals including REAR, CENTER, and SUBWOOFER outputs.

Adjusting the Digital Parametric Equalizer

Before adjusting the parameters, play back the program source, and press PARAMETRIC EQ to turn on the parametric equalizer. You can adjust parameters while

listening to the actual sound. To turn off the parametric equalizer, press PARAMETRIC EQ again to turn off the indicator.



Main unit

Remote commander

MAIN PARAMETER
○

◀ **1** Press MAIN PARAMETER to select EQ LEVEL - EQ FREQUENCY.

▶ PARAMETER MAIN

EQ BAND

◀ **2** Press EQ BAND to select a frequency band. The selected number(1, 2 or 3) appears in the left of the display.

▶ EQUALIZER BAND



◀ **3** Adjust the center frequency.

▶ DIGITAL PROCESSING CONTROL



◀ **4** Adjust the level.

▶ DIGITAL PROCESSING CONTROL

EQ SLOPE

◀ **5** Select the slope.

▶ EQUALIZER SLOPE

6 Repeat steps 2 to 5 for other frequency bands until you obtain the desired equalization curve.

Using the Digital Parametric Equalizer

If the **OVER** indicator appears in the display window

- When listening to a program source connected to the digital input jacks:
Press DIGITAL input button (-) until the **OVER** does not glow at the highest level.
- When listening to a program source connected to the analog input jacks:
Turn ANALOG input knob counterclockwise until the **OVER** does not glow at the highest level.
- When listening to a Dolby surround program source:
Turn INPUT LEVEL counterclockwise until the **OVER** does not glow at the highest level.

To create a new equalization curve from flat condition

- 1 Press PARAMETRIC EQ to turn off the indicator. The displayed curve will be flattened.
- 2 Create a new equalization curve (refer to the steps 1 to 6 on page 39).

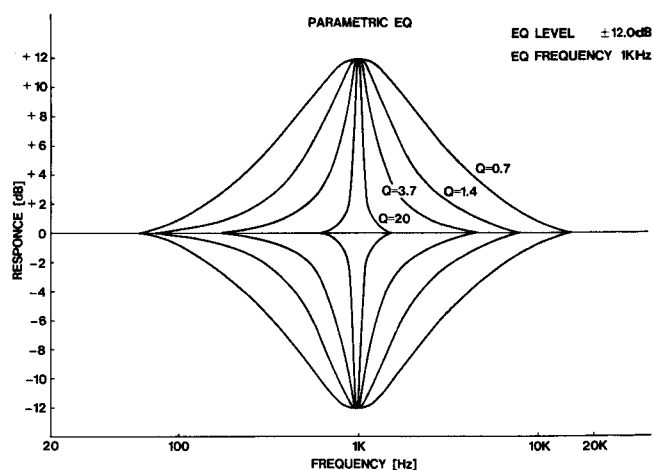
When the same center frequency is selected for more than two frequency bands

The setting level of each band will be accumulated. By using this character, when you select the sharpest slope (20.0) and set the all frequency band to the same desired center frequency, you can adjust the level from -36 dB to +36 dB to eliminate or pick-up the signal of the specified frequency (notch or peaking function). The equalization curve between ± 12 dB is displayed even if the accumulated level becomes beyond the ± 12 dB.

Note

The parametric equalizer has no effects in the Dolby surround mode.

Characteristics of slope



Using the Digital Dynamics Controller

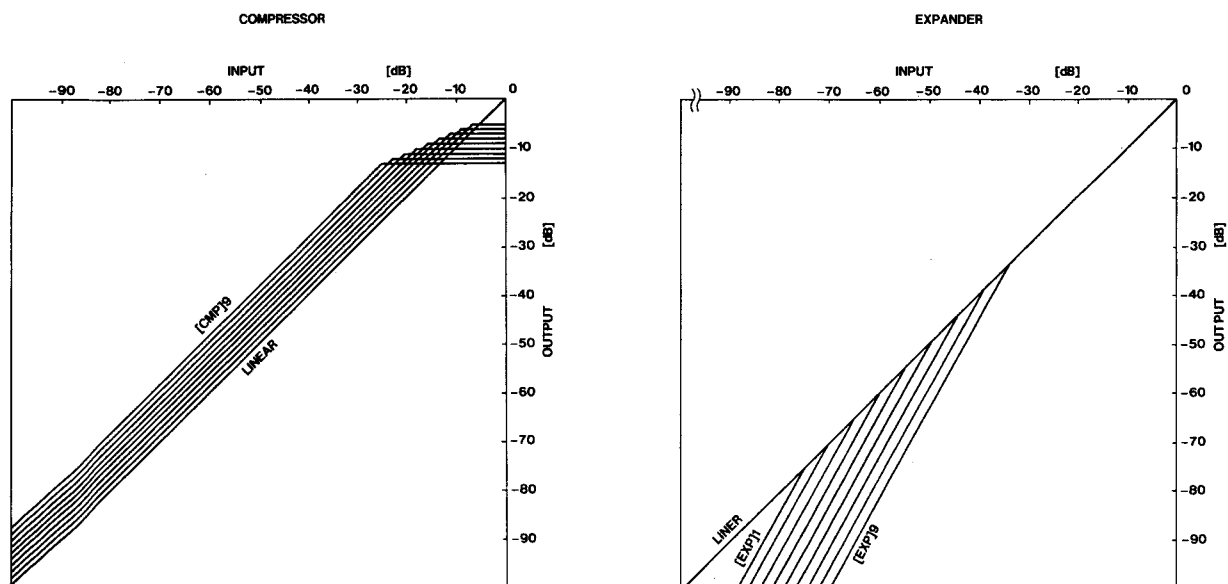
Understanding the Digital Dynamics Controller

The TA-E1000ESD allows you to select either of two dynamics controls, compressor or expander. The compressor compresses the dynamic range of the output signal to increase the average output level without distortion. This function is useful for obtaining dynamic sound at small output levels or when recording a program source with a wide dynamic range, such as a compact disc, on a cassette

tape. On the other hand, the expander limits the dynamic range of the input signal to eliminate undesired noise between tunes.

You can set the compressor or expander effect in 9 increments. When the dynamics controller is set to "Linear", no effect is obtained.

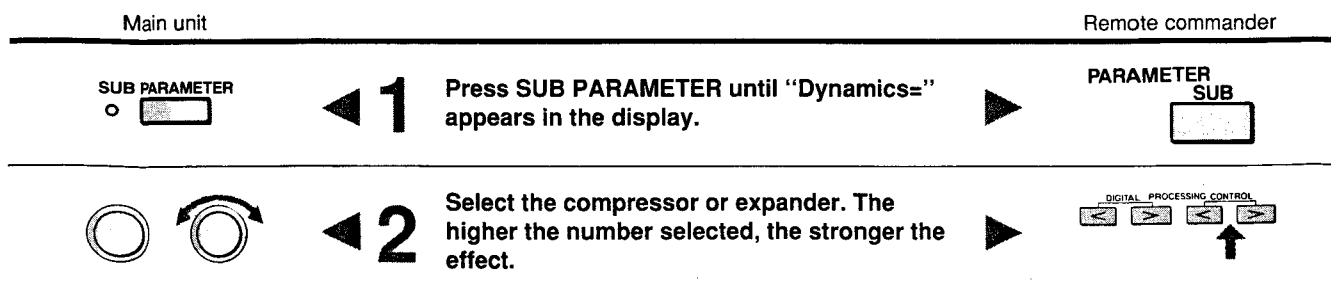
Input/output characteristics of compressor and expander



Adjusting the Digital Dynamics Controller

Before adjusting the dynamics, play back the program source, and press DYNAMICS to turn on the dynamics. You can adjust parameters while listening to the actual

sound. To turn off the dynamics, press DYNAMICS again to turn off the indicator.



Note

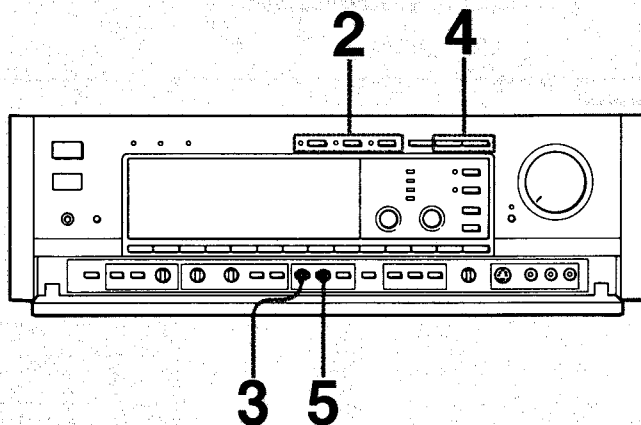
The dynamics controller has no effect in the Dolby surround mode.

Storing the Settings of Digital Sound Effects

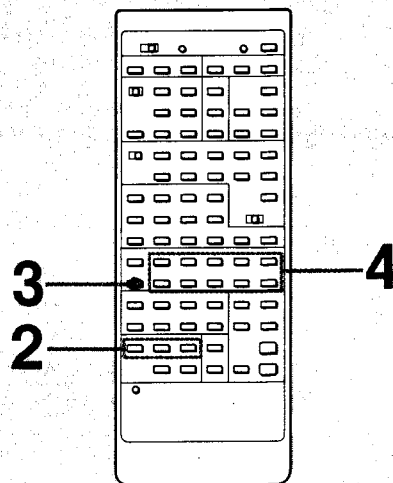
You can store up to 10 soundfield programs (combinations of the settings of surround, parametric equalizer, and

dynamics controller) you created into the memory and recall them with SOUNDFIELD PROGRAM buttons.

Storing the Settings of Digital Sound Effects



Main unit



Remote commander

1

Set the parameters of surround mode, parametric equalizer, and dynamics controller.

PARAMETRIC EQ ☐ DYNAMICS ☐ SURROUND ☐

2

Press PARAMETRIC EQ, DYNAMICS, and SURROUND to turn on or off each function. The functions only turned on will be stored into the memory.

PARAMETRIC EQ ☐ DYNAMICS ☐ SURROUND ☐

☐
MEMORY

3

Press MEMORY. **MEMORY** appears in the display.

☐
MEMORY

SOUNDFIELD PROGRAM

4

Select the number to store the settings.

HALL 1 ~ DOLBY SURROUND

ENTER

5

Press ENTER. **MEMORY** goes off and the settings will be stored.

(When using the remote commander, it is not necessary to press ENTER.)

When you store a new soundfield program

The soundfield program for the same user preset number will be erased.

Recalling the settings of digital sound effects

- 1 Press PRESET/USER until "USER" appears in the display.
- 2 Select the desired preset number.

Even if the AC power cord is disconnected

The stored data is maintained for approximately two weeks.

To reset the unit to initial condition

- 1 Press POWER to turn off the unit.
- 2 While pressing CLEAR, press POWER to turn on the unit. All setting data except the factory-preset soundfield programs are erased.

Table of Factory-preset Soundfield Parameters

Preset No.	1	2	3	4	5	6	7	8	9	10
SURROUND	HALL 1	HALL 2	OPERA	CHURCH	JAZZ CLUB	DISCO	STADIUM	LIVE CONCERT	THEATER	DOLBY SUR
ROOM SIZE	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
WALL	1.0	1.2	1.1	1.8	1.7	1.0	0.7	1.1	0.7	
SEAT POSITION (REAR-FRONT, LEFT-RIGHT)	F20, 0	F20, 0	F20, 0	F20, 0	F20, 0	0, 0	F20, 0	F20, 0	R5, 0	
CENTER LEVEL REAR LEVEL	The last level set will be recalled.									
BAND 1	LEVEL	0 dB	+0.6 dB	+0.6 dB	+0.9 dB	+0.8 dB	-5.0 dB	+2.3 dB	+8.5 dB	+6.5 dB
	FREQUENCY	99 Hz	78 Hz	115 Hz	99 Hz	85 Hz	21 Hz	85 Hz	78 Hz	62 Hz
	EQ SLOPE (Q)	0.7	0.7	0.7	0.7	1.4	1.4	1.4	0.7	1.4
BAND 2	LEVEL	0 dB	0 dB	+0.5 dB	0 dB	+0.3 dB	+10.5 dB	0 dB	0 dB	+1.3 dB
	FREQUENCY	1.00 kHz	1.00 kHz	734 Hz	1.00 kHz	793 Hz	67 Hz	1.00 kHz	1.00 kHz	583 Hz
	EQ SLOPE (Q)	0.7	0.7	0.7	0.7	0.7	1.4	0.7	0.7	1.4
BAND 3	LEVEL	0 dB	0 dB	-0.3 dB	+0.3 dB	-0.3 dB	+7.5 dB	0 dB	+4.7 dB	-1.8 dB
	FREQUENCY	8.00 kHz	8.00 kHz	16.0 kHz	14.8 kHz	20.0 kHz	4.32 kHz	8.00 kHz	8.64 kHz	20.0 kHz
	EQ SLOPE (Q)	0.7	0.7	0.7	0.7	0.7	1.4	0.7	1.4	0.7
Effect Level	90%	90%	90%	90%	90%	90%	90%	90%	90%	100%
Early Reflection Time	27 ms	32 ms	38 ms	97 ms	21 ms	14 ms	255 ms	68 ms	43 ms	
Early Reflection Level	80%	80%	80%	65%			80%	80%		
Reverb-Time	2.2 sec	2.5 sec	1.8 sec	2.6 sec			2.0 sec	2.4 sec		
Spread	1.3	1.6	0.8	2.0			1.6	1.6		
Reverb-Density	Mid	Mid	Mid	Mid			Mid	Mid		
Dynamics	OFF	OFF	OFF	OFF	OFF	CMP3	OFF	OFF	CMP3	
Dolby Delay Time (Rear Lch, Rch)										20.0 ns, 20.0 ns

Specifications

Amplifier section

Frequency response (Parametric EQ, Dynamics, Surround all off)	Other than PHONO	FRONT 1.2, REAR, CENTER (at WIDE)	10 Hz – 20 kHz ± 0.1 dB
		SUBWOOFER	Cut off 80 Hz, -18 dB/oct
	PHONO	VIDEO 1-3 AUDIO OUT, TAPE 1.2 REC OUT	20 Hz – 20 kHz ± 0.2 dB
Input sensitivity and input impedance	PHONO		5 mV 50 k Ω
	TUNER, CD, TAPE 1.2, VIDEO 1-5, VDP, TV		150 mV 50 k Ω
	DIGITAL	OPTICAL 1.2	–
		COAXIAL	0.5 Vp-p $\pm 20\%$ 75 Ω
S/N	PHONO		Front 84 dB, rear 84 dB (A)
	TUNER, CD, TAPE 1.2, VIDEO 1-5, VDP, TV		Front: 91 dB, rear: 91 dB (A)
	DIGITAL (OPTICAL 1.2, COAXIAL)		Front: 110 dB, rear: 95 dB (A)
Remaining noise			Below 10 μ V (A)
Output voltage and output impedance	VIDEO 1-3 AUDIO OUT, TAPE 1.2 REC OUT		150 mV 1 k Ω
	FRONT 1.2, REAR CENTER, SUBWOOFER		1.5 V
	DIGITAL (OPTICAL 2)		–
	Headphones		15 mV (at 8 ohms); accepts low and high impedance headphones
Total harmonic distortion	ANALOG IN		Front: below 0.004% at 1 kHz
	DIGITAL IN		Front: below 0.003% at 1 kHz

Video section

Video input sensitivity and input impedance	VIDEO IN	VIDEO 1-5, VDP, TV	1 Vp-p 75 Ω
	S VIDEO IN	VIDEO 1, 2, 5	Luminance: 1 Vp-p 75 Ω ; chroma: 0.286 Vp-p 75 Ω
Video output voltage and output impedance	VIDEO OUT	VIDEO 1-3, MONITOR 1, 2	1 Vp-p 75 Ω
	S VIDEO OUT	VIDEO 1, 2 MONITOR	Luminance: 1 Vp-p 75 Ω ; chroma: 0.286 Vp-p 75 Ω

A/D, D/A converter section

A/D converter	Type	High Density Linear Converter
	Sampling frequency	48 kHz
D/A converter	Front	18-bit linear 8 fs \times 2
	Rear	16-bit linear 4 fs \times 1 (Dual)
	Sampling frequency	32 kHz, 44.1 kHz, 48 kHz

Digital signal processor section

Parametric EQ	Band		3-band
	Center frequency		18 Hz - 20 kHz
	Level		±12 dB, 0.1 dB step
	Slope (Q)		4-step selectable (0.7, 1.4, 3.7, 20)
Dynamics	Compressor		9-step adjustable
	Expander		9-step adjustable
Surround	Main parameter	Room size	0.5 - 2.0
		Wall	0.5 - 2.0
		Seat position	F50 - 0 - R50, L50 - 0 - R50
	Sub parameter	Early reflection time	1 - 255 ms
		Early reflection level	0 - 100%
		Reverberation time	0.3 - 5.0 sec.
		Reverberation density	Low, Mid, High
		Spread	0.5 - 2.0
		Effect level	0 - 100%
		Both delay time	15.0 - 30.0 ms
		Each delay time	15.0 - 30.0 ms

General

Power requirements U.K. model: 240 V AC (or 220 V AC adjustable by authorized Sony personnel), 50/60 Hz

Continental European model: 220 V AC (or 240 V AC adjustable by authorized Sony personnel), 50/60 Hz

Models for other countries: 120 V, 220 V, and 240 V AC adjustable, 50/60 Hz

Power consumption 35 watts

AC outlets West Germany and the United Kingdom:

1 switched, 540 watts

Switzerland:

Not equipped

Other European countries:

1 switched, 500 watts

Countries other than Europe:

3 switched, total 540 watts

1 unswitched, 300 watts

Dimensions (w/h/d) 470 × 150 × 360 mm

(18½ × 6 × 14¼ in)

430 × 150 × 365 mm

(17 × 6 × 14⅜ in) (U.K. model)

Weight

8.0 kg (17 lb 11 oz)

7.0 kg (15 lb 7 oz) (U.K. model)

Supplied accessories

Programmable remote commander RM-P1000 (1)

Sony batteries SUM-3 (NS) (2),

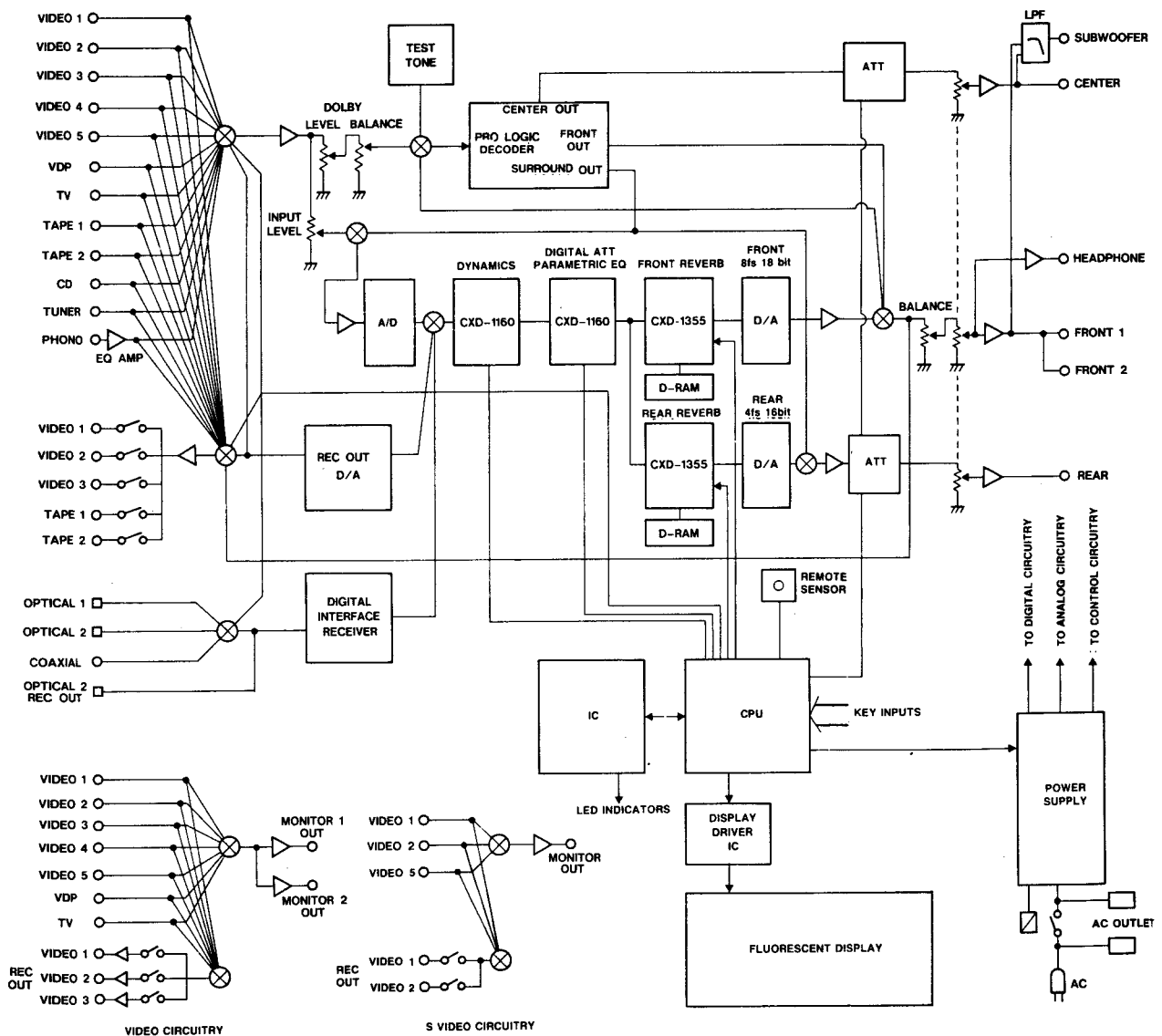
Connection cord (2), Screws (4)

Design and specifications subject to change without notice.

Note

This appliance conforms with EEC directives 76/889 and 82/499 regarding interference suppression.

Block Diagram



Troubleshooting

Before proceeding through the check list below, examine the connections and the procedures outlined in the manual.

Should any problem persist after you have checked the following items, consult your nearest Sony dealer.

Symptom	Cause	Remedy
No sound is heard even if you adjust the volume.	The program source equipment is not connected correctly.	Connect the equipment correctly ⑥ - ⑨.
	A wrong input function button has been pressed.	Check the display window, and press the correct input function button ②④.
	A digital input is assigned to the input function button.	Reset the assignment, or connect an appropriate digital program source to the digital input jack ②③.
	The MUTING button has been pressed. (The MUTING indicator is lit).	Press the button to disengage ⑩.
	DIGITAL/ANALOG input level is set to minimum.	Adjust the input level correctly ⑩.
	"CENTER OFF" is selected in the PRO LOGIC MODE.	Select other modes ⑮.
No sound or sound at very low level is heard from rear speakers.	SURROUND function is turned off.	Press SURROUND to turn on the function ⑩, ③②.
	Output level of the rear speakers is set to - ∞.	Adjust the level to appropriate level ⑮.
	Monaural program source is played back in Dolby surround mode.	Select other surround modes ③①.
The remote commander will not operate.	The batteries are exhausted	Replace the batteries with new ones.
	The commander head is not pointed toward the unit's front.	Point the commander head toward the receiver
	There is an object between the commander and the receiver.	Remove the object.
The remote-control signal cannot be programmed.	Programming is interfered by noise.	Place both remote commanders apart from the source of noise ②⑧.
	The batteries are exhausted.	Replace the batteries with new ones.
The LEARN indicator goes off after flashing.	The internal memory capacity is full.	Clear the signals and program again ②⑨.

AVERTISSEMENT

Afin d'éviter tout risque d'incendie ou d'électrocution, ne pas exposer cet appareil à la pluie ou à l'humidité.

Afin d'écarter tout risque d'électrocution, garder le coffret fermé. Ne confier l'entretien de l'appareil qu'à un personnel qualifié.

Tension d'exploitation

Avant de brancher l'appareil sur une prise secteur, prière de confirmer que sa tension de fonctionnement est identique à celle du secteur local.

Pays européens	Fonctionne sur secteur de 220 V, 50/60 Hz.
Royaume-Uni	Fonctionne sur secteur de 240 V, 50 Hz.
Autres pays	Fonctionne sur secteur de 120 V, 220 V ou 240 V, 50/60 Hz. Un sélecteur de tension est prévu sur le panneau arrière. Si son réglage doit être modifié, débrancher le cordon d'alimentation secteur et tourner le sélecteur à l'aide d'une pièce de monnaie de manière que la flèche soit dirigée vers la valeur correcte de la tension.